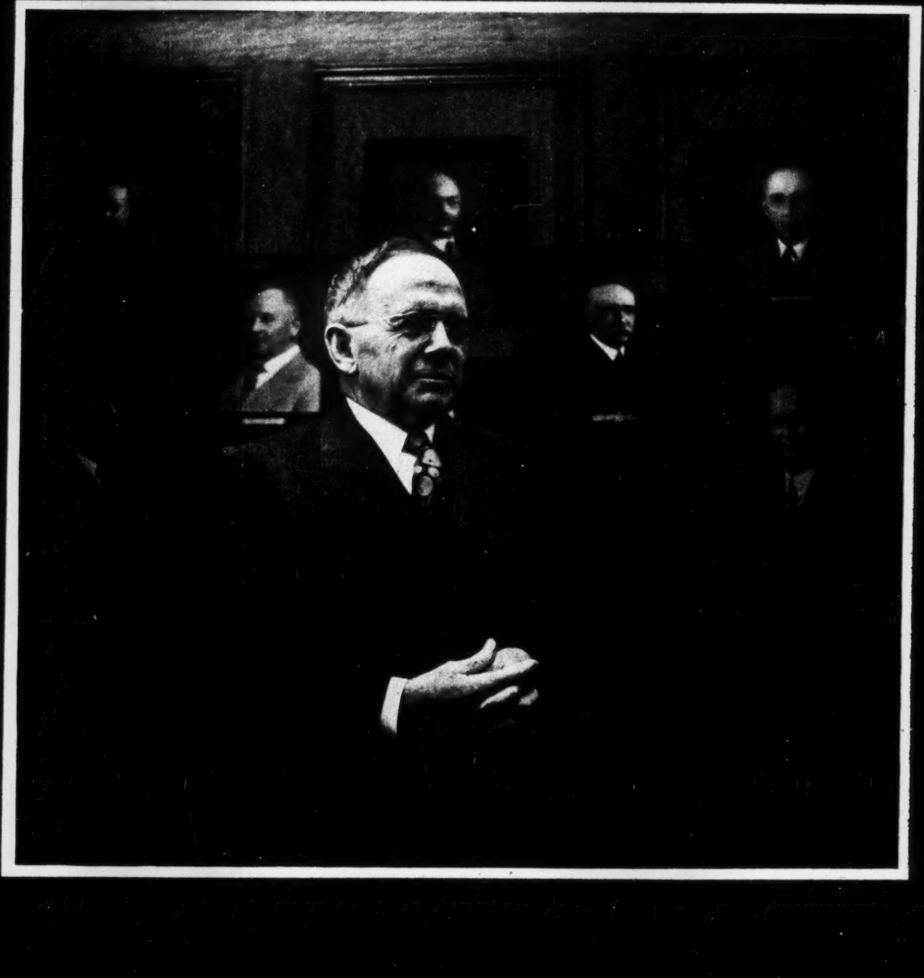
ENGINEERING NEWS-RECORD



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BYERS WROUGHT IRON protection

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In this new 60,000 KW Plant, built to meet rapidly increasing city requirements, materials were carefully selected to meet service conditions. In 23 varied services facing corrosive hazards, the designers selected genuine wrought iron to forestall the maintenance threat of early failure and costly replacement.

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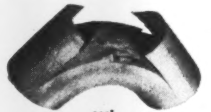

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This notch-fracture test specimen illustrates the unique fibrous structure of genuine wrought iron—which is responsible for the high corrosion resistance of the material. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, halt and disperse corrosive attack, and discourage pitting and penetration. They also anchor the initial protective scale, which shields the underlying metal.

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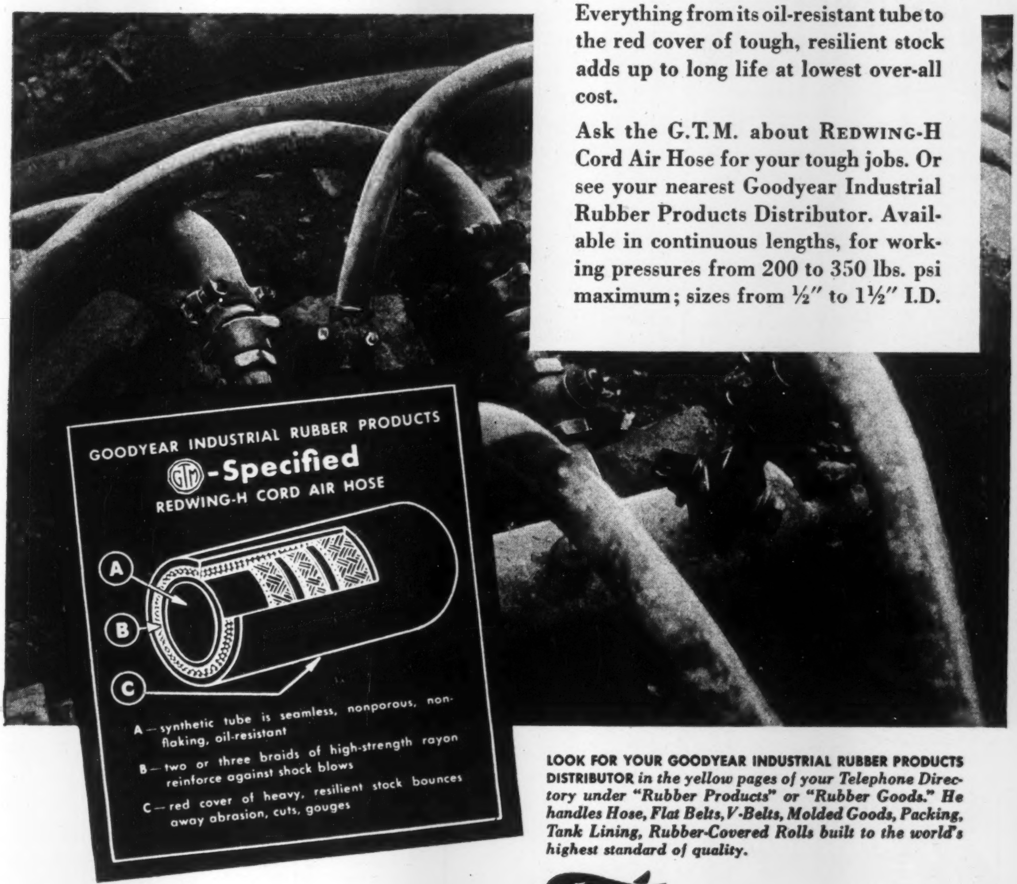
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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 149 October 23, 1952 No. 17

WALDO G. BOWMAN
Editor

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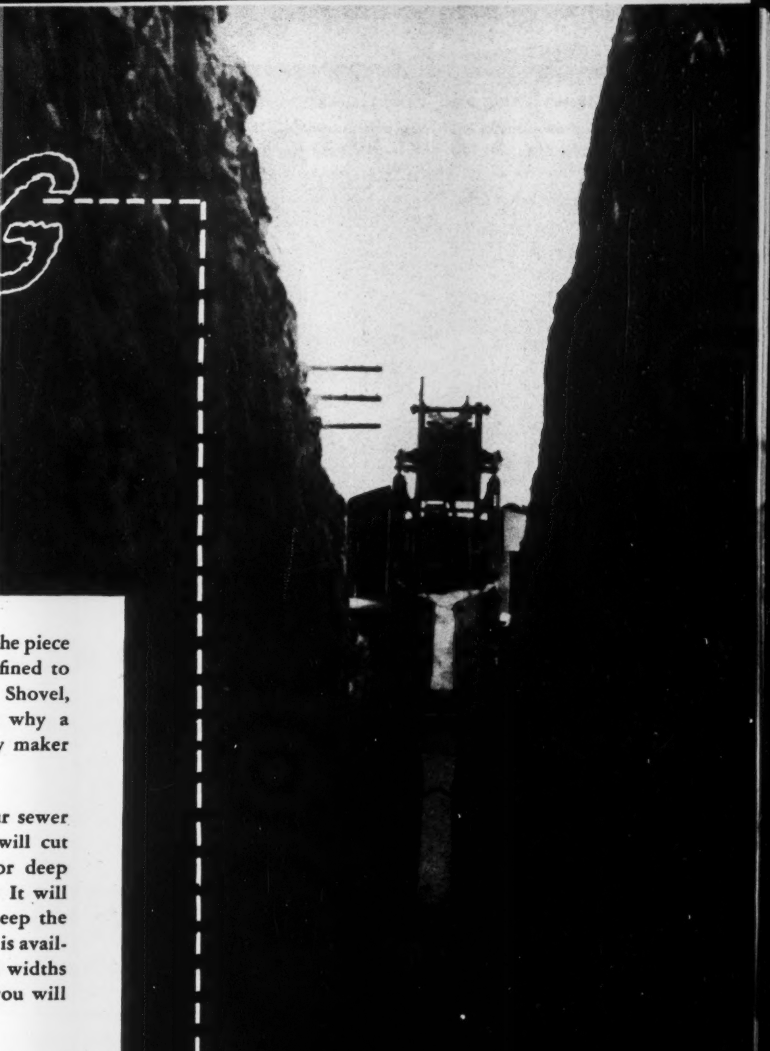
It's a LONG WAY DOWN



—and when you remind yourself that the piece of equipment that does this is not confined to ditching but is easily converted to a Shovel, Crane or Dragline, then you realize why a Northwest Pullshovel is a better money maker than a one-purpose machine.

Don't buy a one-purpose unit for your sewer work and ditching. Your Northwest will cut straight wall trench, shallow trench or deep trench, narrow trench or wide trench. It will spoil to banks or load to trucks and keep the street open. A wide range of side teeth is available for various ground conditions and widths —and being a Northwest you know you will have the best in operating ranges.

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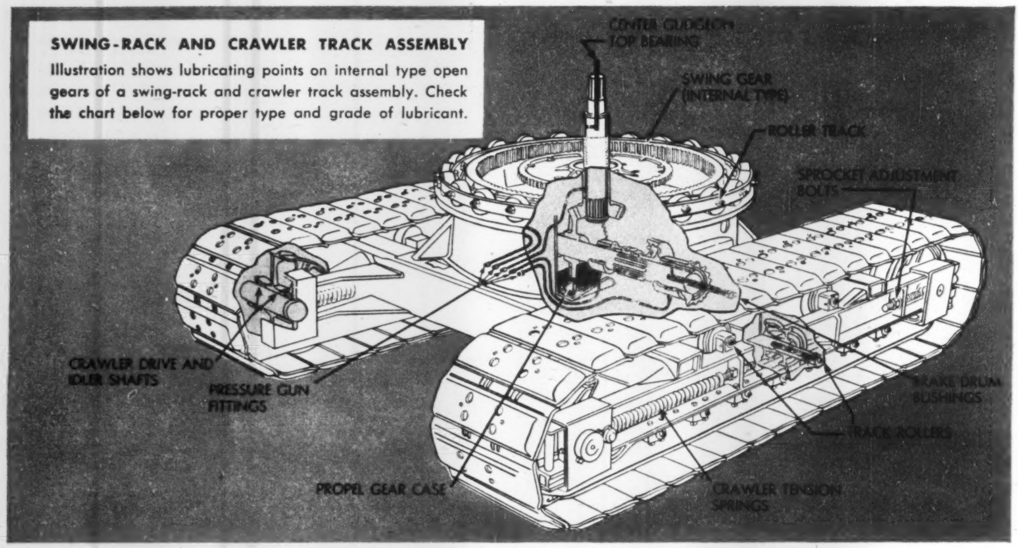


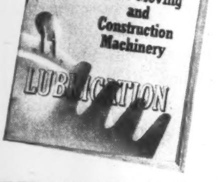
SWING-RACK AND CRAWLER TRACK ASSEMBLY

Illustration shows lubricating points on internal type open gears of a swing-rack and crawler track assembly. Check the chart below for proper type and grade of lubricant.

CENTER GUDGEON TOP BEARING
SWING GEAR (INTERNAL TYPE)
ROLLER TRACK
SPROCKET ADJUSTMENT BOLTS
CRAWLER DRIVE AND IDLER SHAFTS
PRESSURE GUN FITTINGS
BRAKE DRUM BUSHINGS
TRACK ROLLERS
PROPEL GEAR CASE
CRAWLER TENSION SPRINGS

Where, how and with what to lubricate?

Lubricating procedures and suggested materials discussed on this page represent just one of the many invaluable sections contained in the newest Cities Service EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION BOOK. For your FREE copy, write Cities Service Oil Company, Dept. J-14, Sixty Wall Tower, New York City 5.



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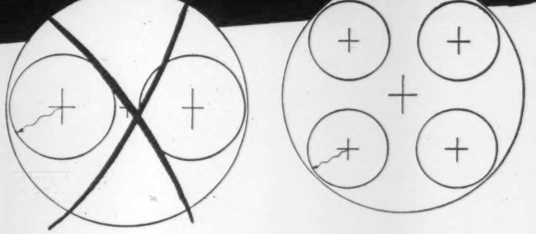
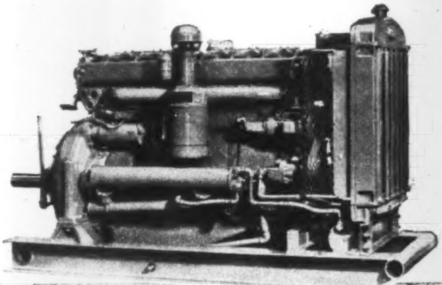
LUBRICATION OF SWING-RACK AND CRAWLER MECHANISM

Part or Unit	How Lubricated	Lubricant Recommended	Grade No. 0°F. to 32°F.	Grade No. Above 32°F.
CRAWLER MECHANISM— Track rollers, idlers, track wheels, etc.				
Oliver:	Track Wheel System	Trojan Gear Oil	#90	#140
Allis-Chalmers:	Positive Seal Units	Trojan Grease	P-0	P-0
Others—				
Grease Lubricated:	Pressure gun fittings	Trojan Grease	A-0	A-1
	Pressure gun fittings	Trojan Grease	F-3-0	F-2-0
Oil Lubricated:	Hand gun or other means	Trojan Gear Oil	#90	#90 to #250
GEAR DRIVES—				
Open: Normal Condition	By brush or other means	Cisco Compound	#3-Z	#5-Z
Dusty Condition	By brush or bath	Raven Oil	#3	#7
Enclosed:	Bath	Trojan Gear Oil	#90	#140

Here's why MURPHY DIESELS put more power into your job with longer life and less maintenance





Murphy Diesel rated at100 H.P., continuous, powering a Diamond portable primary rock plant.

MURPHY DIESEL

THE power a diesel engine develops is dependent to a great degree on the breathing capacity of the valves. Breathing capacity of the valves in turn is determined by the circumference of the valves and their lift. Thus, when we compare Murphy Diesel's 4 valve design with the conventional 2 valve design of equal total valve area, simple arithmetic shows that total circumference of the 4 valve arrangement is 41.4% greater. With equal lift, the breathing capacity is also 41.4% greater.

At the same time, Murphy design provides 41.4% more metal-to-metal contact between the circumference of the valve and the seat for dissipation of valve heat. This, coupled with the smaller valve radius in 4 valve design (which means the heat has a shorter distance to travel to escape), explains why Murphy valves run cooler and rarely, if ever, have to be ground.

Four valves per cylinder is just one of the many reasons for Murphy's high standards of performance and economy. Others are given in the booklet "10 Questions to Ask a Diesel Engine Salesman". Get a copy from your Murphy Diesel Dealer or write direct.

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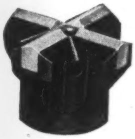
When you hit hard or abrasive ground, switch to Timken carbide insert bits, your best bet for maximum speed drilling, constant gage holes, small diameter blast holes and very deep holes.

These two Timken bit types can solve your drilling problems.

Only Timken rock bits offer you these three important advantages: (1) made from electric furnace Timken fine alloy steel (2) threads not subject to drilling impact because of the special shoulder union developed by the Timken Company (3) can be changed quickly and easily—right on the job.

Call upon the 20 years' experience of our Rock Bit Engineering Service for help in selecting the best bits for your job. Write The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

Timken threaded multi-use rock bit



Timken threaded carbide insert rock bit

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When officials made plans for Waltonville Community High School, Waltonville, Illinois, they specified longer life for screeds and subflooring. They specified penta preservative.

All 1 x 8 yellow pine subflooring and 2 x 2 screeds are protected with Monsanto Penta. The lumber . . . a total of 9,452 board feet . . . was treated by the pressure process to retain six pounds of penta-in-oil solution per cubic foot.

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If you specify wood for any structural purposes, you will be interested in Monsanto's new booklet, "*For maximum wood protection, specify Monsanto Penta.*" For your copy, contact the nearest Monsanto Sales Office or MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 800 North Twelfth Blvd., St. Louis 1, Missouri.

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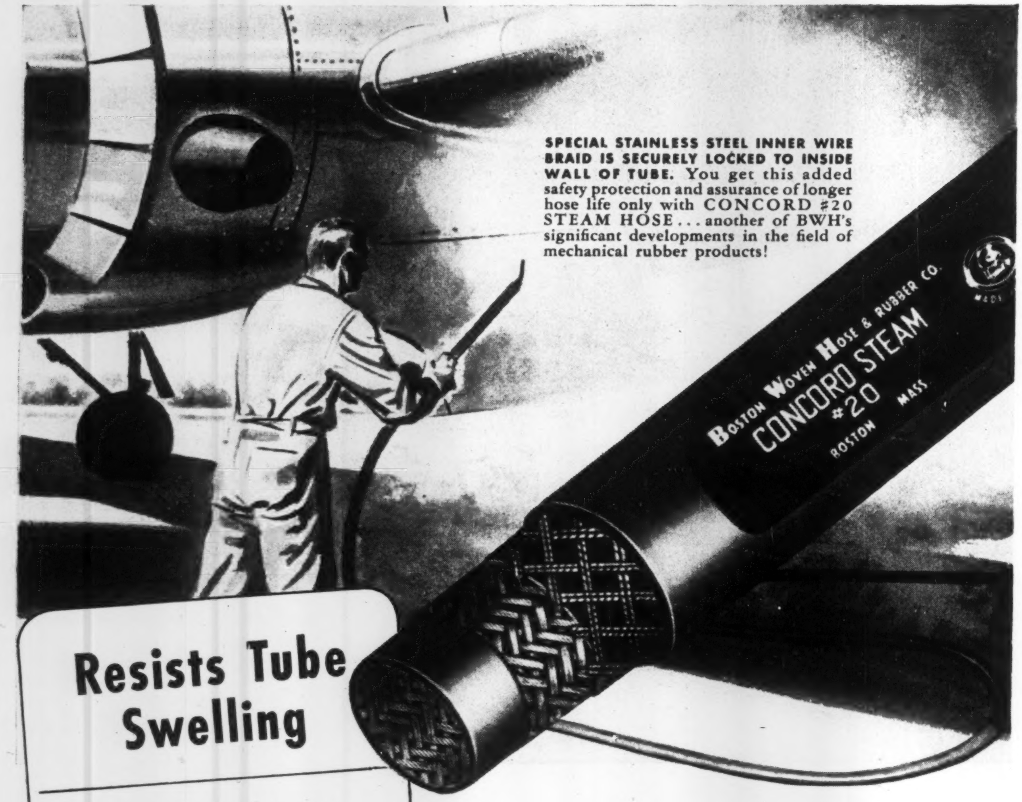
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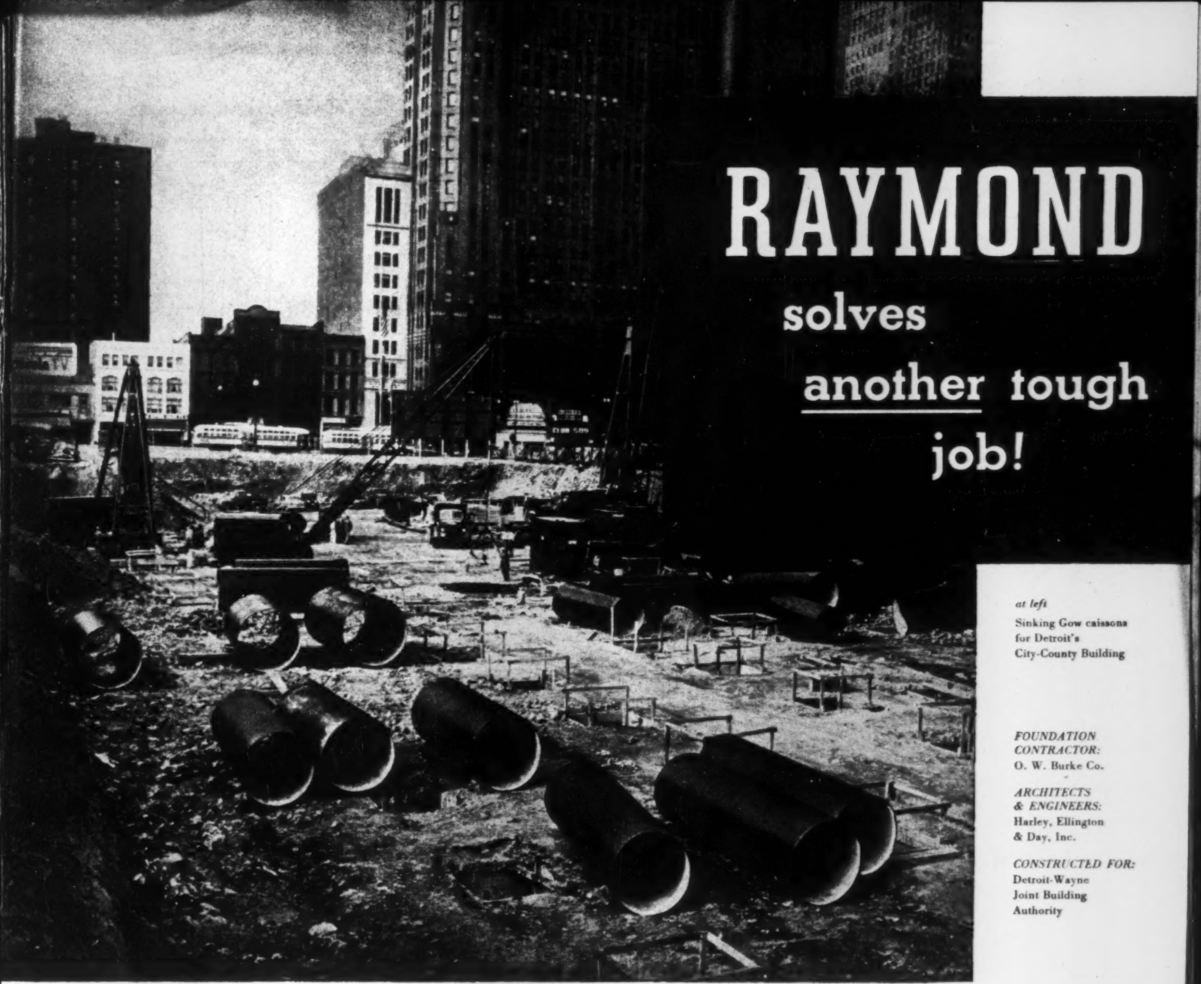

at left
Sinking Gow caissons
for Detroit's
City-County Building

FOUNDATION CONTRACTOR:
O. W. Burke Co.

ARCHITECTS & ENGINEERS:
Harley, Ellington
& Day, Inc.

CONSTRUCTED FOR:
Detroit-Wayne
Joint Building
Authority

... **To provide** the foundation for the City-County Building in Detroit's new Civic Center, Raymond placed 126 Gow caissons, with diameters of 48 to 74 inches, to depths exceeding 100 feet to hardpan. The caissons were belled out on the hardpan to varying diameters. Completion of this project ahead of schedule is another example of how Raymond engineers combine knowledge and experience with specially designed equipment to provide any type foundation anywhere. We would like to serve you on your next project.

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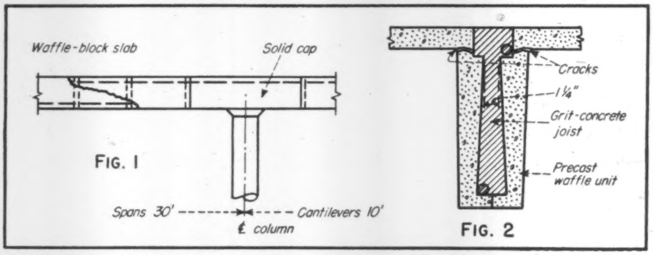

FIG. 1

FIG. 2

ROOF SLAB that collapsed consisted of precast waffle blocks and poured joists. Diagonal tension crack is shown in Fig. 1, cracks in block walls in Fig. 2.

Why waffle slab failed

Sir: The writer was employed after the failure of the warehouse roof at Ojus, Fla. (ENR May 22, p. 25), to advise the licensees of the Youtz-Slick lift-slab method as to the cause of the failure and has since been employed by the owner of the building, Atlas Terminals, Inc., to test and reinforce, if necessary, the existing structure.

The roof is now completed. It consists of a series of 50x50-ft slabs of waffle-type construction. Structurally, it is a flat plate, supported on four posts, with a 10-ft cantilever on each side.

The May 9 collapse (third failure) was in the nature of a circular shear failure at, or near, the edge of the solid cap. This would be classed by engineers as a failure in diagonal tension. The cause was excessive shearing stresses. The vertical shearing stress over the gross area of the joists under the 75-psf dead load was 93 psi on a section without stirrups. This was excessive because:

1. In certain cases, the cantilever steel and the positive steel overlapped each other by not more than about 2 ft and there were no stirrups or bent bars to hang the bottom steel from the top cantilever steel. The line of diagonal tension (Fig. 1) had no steel whatsoever across its path.
2. Bond between smooth walls of waffle block, or coffer, and the grit concrete fill of joists was questionable.
3. It appears that there was weak adherence between the top of the coffers and the side walls. So much so, that cracks were found there. These were near the level of the arbitrary cracks sketched in Fig. 2. This condition would be particularly bad in the case of the negative moment areas.
4. Latest findings on ultimate nominal shearing stress (E. Hogenstad, JOURNAL of the American Concrete Institute, June, 1952) indicate a much lower value than previously believed. Test results tend to show an ultimate of around 0.05 f'_c. With the standard ACI code value of 0.03 f'_c for a concrete beam, a safety factor less than two would be found if shear governed.

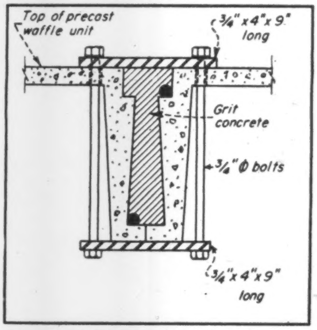

FIG. 3. U-BOLT YOKE was placed around joists to increase horizontal shearing strength.

• **Safety measures**—The problem of establishing the safety of the structure may be divided into two parts: installation of any reinforcement required and thorough testing of the structure. The weakness in diagonal tension calls for:

1. Vertical steel to hang the positive moment area to the negative moment cantilever and resist diagonal tension.
2. Increased horizontal shearing strength between coffer tops and joist walls by clamping the bottom and top of the joists together to produce compressive stress. This has been done with U-bolt yokes placed on all joists in the cantilever area that have a high shearing stress and also to reinforce the transition area between negative and positive moments.

The building has so far safely undergone exhaustive tests.

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and this applies to all types of heavy highway construction—grading, road mixing, scarifying, etc. We find the Adams has more weight for increased traction, better stability, greater over-all dirt-moving capacity and plenty of power to handle all jobs easily." So reports Northwestern Engineering Co., Denver, Colorado.

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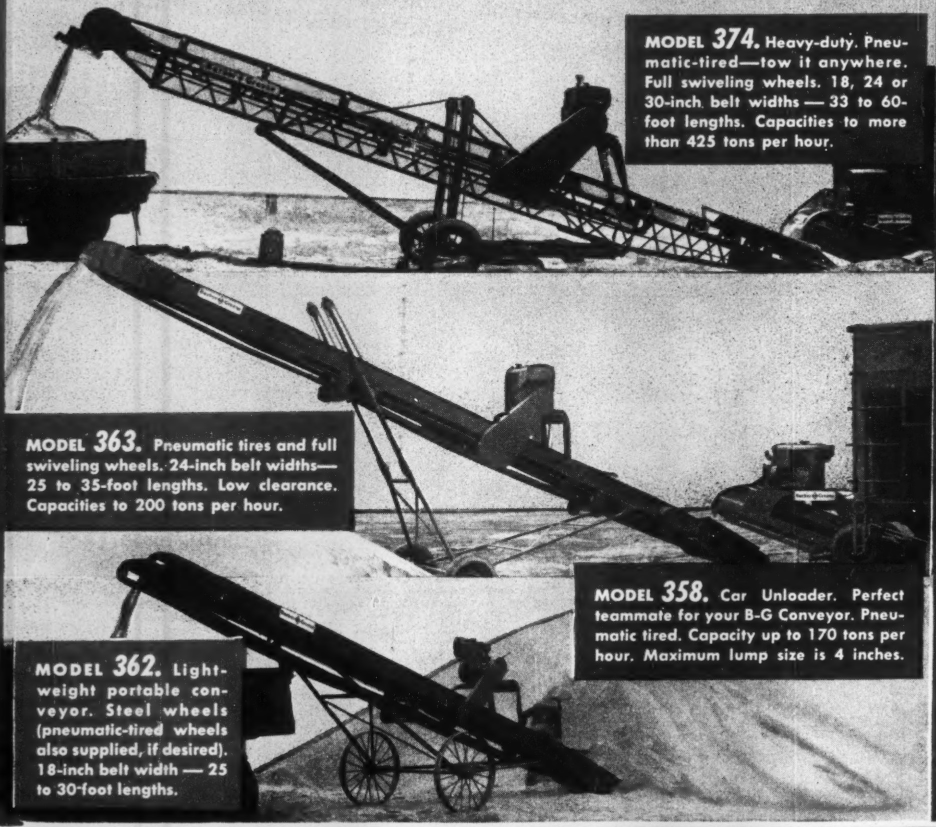

MODEL 374. Heavy-duty. Pneumatic-tired—tow it anywhere. Full swiveling wheels. 18, 24 or 30-inch belt widths — 33 to 60-foot lengths. Capacities to more than 425 tons per hour.

MODEL 363. Pneumatic tires and full swiveling wheels. 24-inch belt widths—25 to 35-foot lengths. Low clearance. Capacities to 200 tons per hour.

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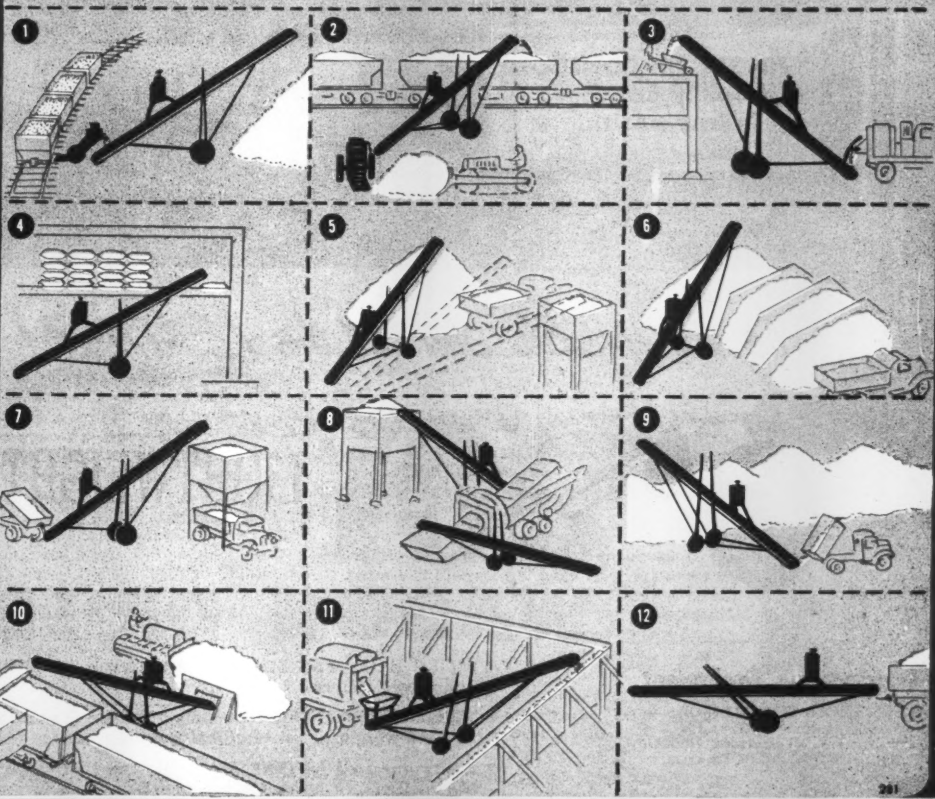

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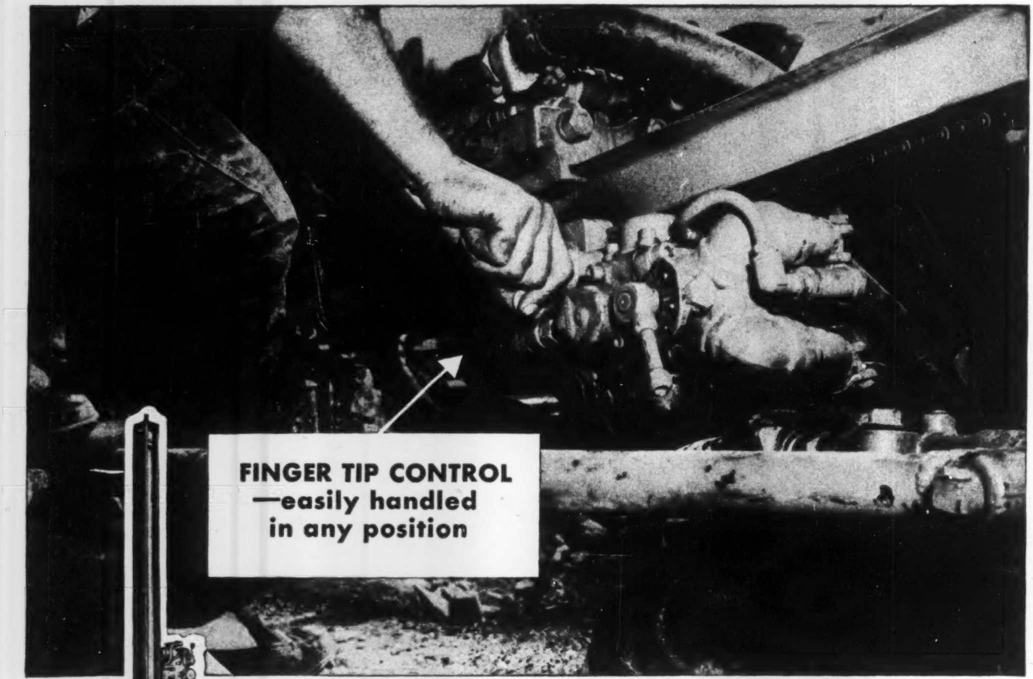

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• Effect of lifting—As to the effect of lifting the slab into place, candor requires this statement: We know absolutely that the design of the slab had an extremely low safety factor. We cannot say definitely, however, that the lifting operation might not have been the actual occasion of the failure of the first slab, when a column stub carrying a lifting jack was wrenched loose (ENR Mar. 27, p. 25), or that defective threads on the inverted flange that supported the slab were not the occasion of the second failure.

However, the writer has made computations and conducted numerous tests. These included one slab poured at a high level on fixed forms to eliminate the possible effects of lifting. The computations and tests disclosed the fatal weaknesses in the slab previously described. Furthermore, it is common sense that, with an adequate design, such a slab could be raised without any material overstresses occurring, provided variations in elevation of the different hangers are kept within reason. The equipment that the Institute of Inventive Research had on this job is scientifically designed to prevent one hanger from getting ahead of another in elevation.

• Noteworthy design features—The design has certain originality, such as the use of precast coffer blocks in connection with a coffered slab, which in itself is lighter and might be more economical than a solid flat slab. This design could easily be varied so as to produce one with an adequate safety factor.

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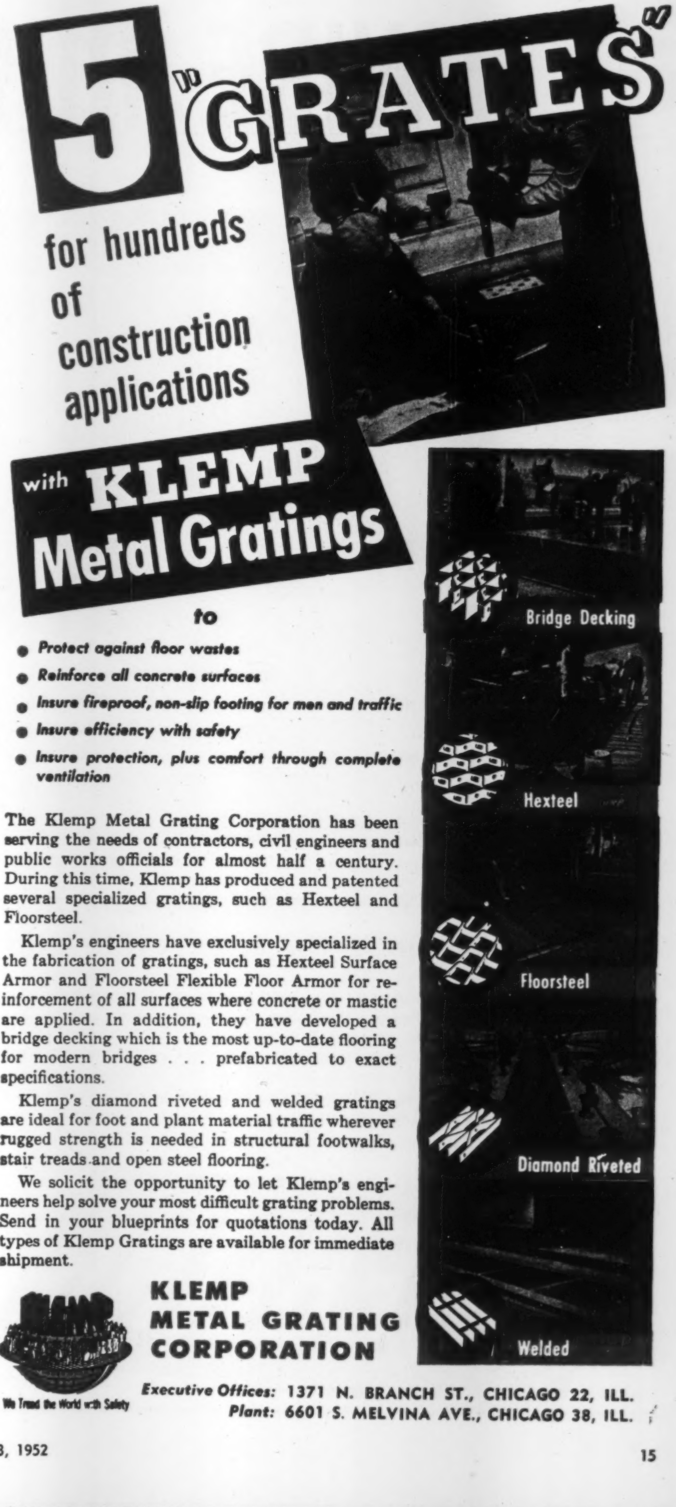
California section, American Water Works Association, Huntington Hotel, Pasadena, Calif., Oct. 27-31.

Structural engineering conference, University of Illinois, Urbana, Nov. 12-14.

Inter-American Association of Sanitary Engineering, conference, Buenos Aires, Argentina, Nov. 19-30.

Society for Experimental Stress Analysis, Hotel McAlpin, New York City, Dec. 3-5.

Illinois traffic engineering conference, University of Illinois, Urbana, Dec. 11-12.



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Housing Still Booming Along

The postwar housing boom still looks very healthy. Builders will start about 1,100,000 housing units in 1952—about the same as in 1951, and the best ever except for record 1950.

Next year is likely to be almost as good—perhaps about one million starts. That will make five one-million-start years in a row; until 1949, builders had never reached the million figure, even in the booming twenties.

In fact, homebuilding is better off now than it was at this time last year. Housing activity was declining toward the end of 1951—even more than the normal seasonal decline. Activity is holding up much better this year.

The number of housing starts in 1952 has been higher than in 1951 for every month since March, except for June. Dollar volume of work on new private housing has been better than 1951, since May. And in August—for the first time this year—physical volume of new private residential building passed the level of the comparable 1951 month. ENR figures on private mass housing contracts are 56% over the 1951 level for the first 42 weeks of this year.

• **Good signs**—Here are some reasons for thinking that homebuilding will continue at high levels for at least another year.

The general business outlook is a favorable factor. Business activity is expected to stay at extremely high levels at least through the middle of 1953. High employment and incomes are especially important in maintaining the housing boom at or near its present levels. A lot of people, now able to buy houses because of higher incomes, might well pull in their horns if business activity begins to decline markedly.

Easing of federal controls on mortgage credit, effective in September, adds another bright touch to the housing picture. Many private lenders will continue to demand more than the minimum federal requirements, of course, but down payments on many houses nevertheless will be reduced.

In addition, there should be enough mortgage money for a million new housing units next year. Money may be tighter at the beginning of the year, when borrowing to finance tax payments is heavy. But business demand for loans is likely to fall off later in the year, making more money available for mortgages.

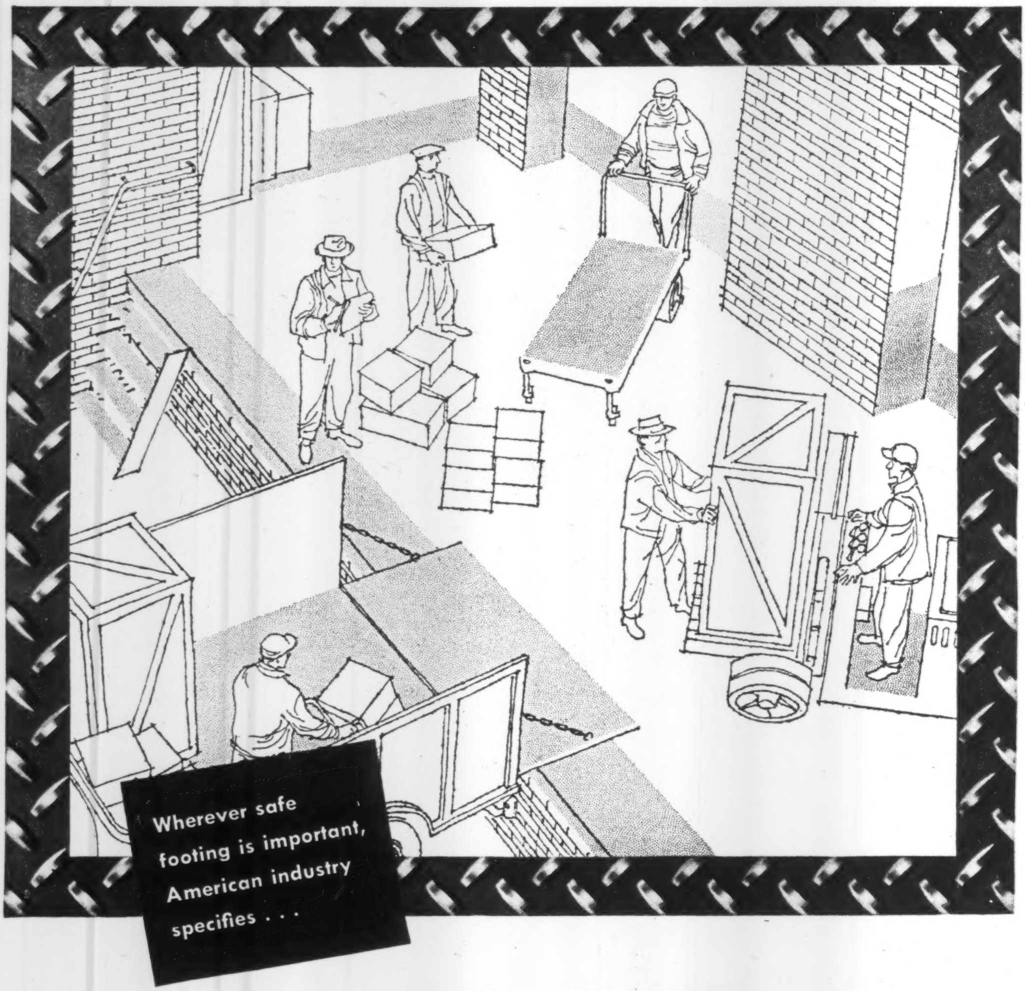
Housing costs are being kept fairly well under control. That's another reason for optimism. Wages are up. But the cost of building materials has been lower, on the average, in most of 1952 than it was in 1951.

• **Demand still good**—The public still wants to buy houses. That fact is clear in results of the Federal Reserve Board's 1952 survey of consumer finances, which shows that about 1,300,000 spending units (families or households) planned to buy houses in 1952. That's about 200,000 more than had such plans in 1951.

Consumers are making more buying plans for 1953, according to the survey. About 8% of all non-farm spending units had at least tentative plans to buy houses in 1953. Some of these people will change their minds, of course. But the large size of the group with home buying on their minds is reassuring.

However, the outlook for housing is by no means all rosy in the longer run. The low birth rate in the early 1930s is chiefly responsible for forecasts of a decline in housing. Formation of new families will be much lower in the fifties than in the forties—perhaps 15% to 30% lower—simply because there will be fewer people of marriageable age available.

Still, the drop has not come yet, and it may be offset partly by a larger market for bigger homes to house the increasing number of growing children in U. S. families. Public housing, too, which has been growing in importance for several years, could also go ahead regardless of how many new families are established, since one of its functions is to clean out slums and raise housing standards.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THE CONSTRUCTION WEEK

- **New look on research**—The National Association of Home Builders this week had made official a move to reorganize its Department of Technical Services and Research into a new Research Institute Division. It had some cogent reasons.

  NAHB eventually will set the division up as separate entity with the status of a non-profit corporation. As such, it gains a couple of advantages over a research wing of a trade corporation. It can accept gifts and grants and it will have clear-cut authority to direct a program of basic and applied research.

  One immediate assignment has been taking over NAHB's "Project Trade Secrets" (now more prosaically—but correctly—called "Alternate Materials, Methods and Field Research") where, in regional meetings, cost-cutting information is exchanged. Another will be of interest to manufacturers. The division will be able to offer the services of NAHB builder-members to make field tests of new materials under almost any conditions of control that manufacturers may desire to prove their products.

  NAHB hastened, also, to assure everyone concerned that the new division won't compete with existing research organizations—rather it'll cooperate.

- **Not dead yet**—Despite the U. S. Supreme Court's action (ENR Oct 16, p. 19) which in effect called on Los Angeles to build a huge housing development, opponents won't lie down.

  Latest efforts are now directed at: (1) getting legislation on state or federal levels to empower the city council to cancel the project; (2) getting Mayor Bowron to push for a mutual agreement (with the City Housing Authority) to end the contract.

- **Power fight**—Construction men can well afford to watch the complicated battle over electric power that is under way this week in U. S. District Court in Washington. On the outcome can hang a lot of construction business—as well as basic questions of law.

  The action is brought by 10 Missouri electric companies against five generating and transmission co-ops, the Rural Electrification Administration and the Department of the Interior. The power people claim violation of the Rural Electrification Act and the Flood Control Act.

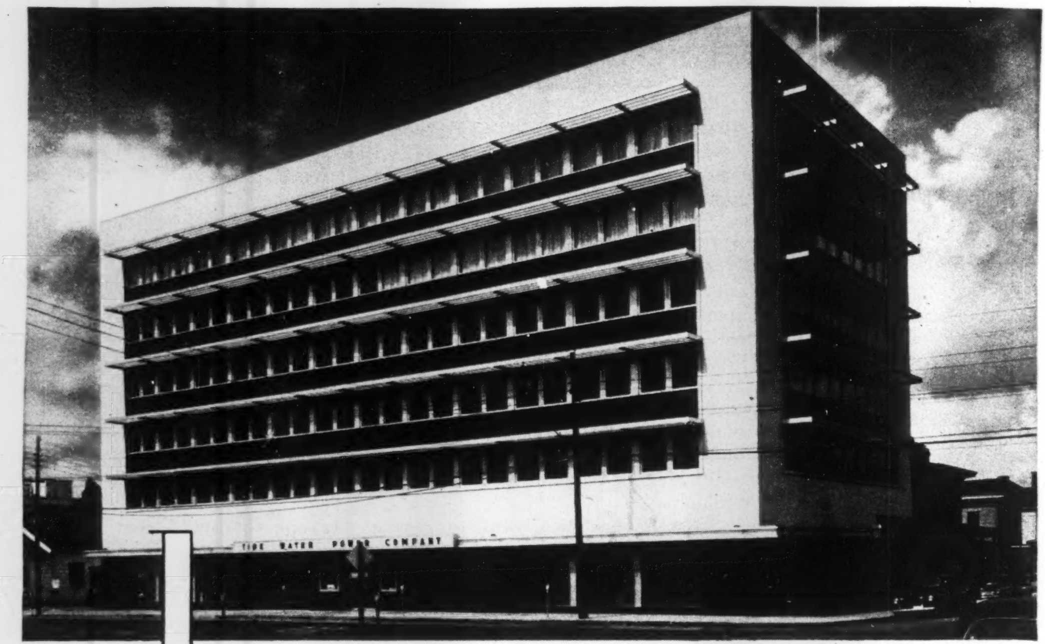
  Say the power companies: The RE act has been violated by extending power to customers already served privately, by serving customers outside rural areas, by indirectly making loans to other government agencies. The Flood Control Act is violated by indirectly transferring funds from one agency to another.

  More than $57 million of new work on steam plants and transmission lines planned by the cooperatives is being blocked by the power-company action, pending the court's action.

  In a long series of pre-trial maneuvering, the government has said No, categorically. But it's up to the court to decide—and insiders expect the court will be taking a long time for its decision.

- **No snow road?**—Without giving chemical details, German engineers have opened a 500-ft stretch of highway near Hamburg that they claim will be snow-proof down to 70 deg below zero—and won't need any heating apparatus.

  The frost-melting surface consists of a chemical emulsion developed by Wilhem Rademacher, called "E.C. 999 A.N." mixed into the surface of the road. The inventor claims that the chemical, plus electromagnetic radiations from the earth, will dissolve snow and ice.



Tide Water Power Company building, Wilmington, N. C.

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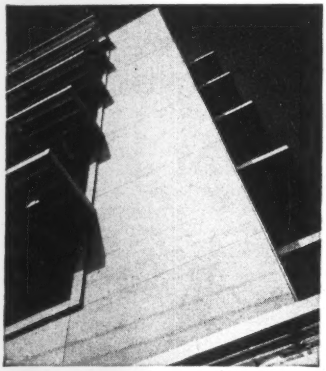
Architectural concrete slabs in modular design made short work of a long exterior here. Large, lightweight slabs made with Atlas White Cement were erected in a fraction of the time that smaller units require. Fewer joints minimized time and cost of pointing, flashing, waterproofing. And a rich color contrast was built in . . . permanently!

The modern design is highlighted by cream-colored slabs that stand out smartly against blue steel paneling beneath the windows. Polished base slabs provide a rich contrast in dark red. These are only a few of the virtually limitless color and texture effects possible when you use concrete facing slabs made with Atlas White Cement. Its true and uniform white brings out the full color values of both aggregates and pigments.

Atlas White Cement complies with ASTM and Federal Specifications. For further information, see SWEET'S Catalog, Section 4E/7a and 13C/5, or write Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.



STRONG 7′ x 7′ slabs of architectural concrete cover large areas quickly . . . in rich color. They're only 2″ thick, allowing savings in weight and space for the building! Architect: Charles C. Hartmann, General Contractor: C. M. Guest & Sons, precast slabs by Mabie-Bell Co.—all of Greensboro, N. C.

ENR-WCSI-36

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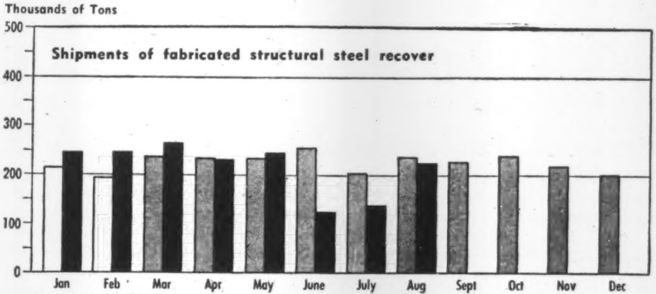


American Institute of Steel Construction

Steel shortage slackens

- **Structurals near pre-strike availability**
- **Supply to catch demand in 1st quarter**
- **More than enough seen for 2nd quarter**

This week, as steel production raced on to new peaks, the outlook for steel shapes for construction was encouraging for the first time since the end of this year's strike.

Last week, for the third straight week, steel was rolling off the mills at better than 106% of capacity, posting all-time records for production.

The impact of this avalanche has had two effects: (1) It has created a wave of optimism among producers, steel fabricators, and construction men, and (2) it has strengthened their convictions that the time for shelving the Controlled Materials Plan has arrived. The Defense Production Administration and the National Production Authority are now squarely in the middle of a heavy cross-fire as:

- Producers, including the American Bridge Division of U. S. Steel, and Bethlehem Steel Co. say strike losses are nearly made up and shortages are disappearing.
- The American Institute of Steel Construction, in resolutions sent to DPA-NPA officials this week, asked for complete removal of controls.
- The Associated General Contractors, at its recent convention (ENR Sept. 18, p. 24) said CMP is hampering construction. It is intensifying its drive for early relief from restrictions.

End of controls urged

Typical sentiment on steel supply and controls was stated by J. V. Honeycutt, assistant vice-president of sales for Bethlehem. He told ENGINEERING NEWS-RECORD that the demand for structural shapes is not as urgent as it was a year ago. In less than four months after the strike, losses caused by it will be nearly recovered.

Main factors in the rapid recovery of steel for construction, in addition to record production rates, are: (1) the amount of inventory on hand when the strike began; (2) demand for "beam and column" industrial structures is falling, as the defense build-up levels off.

"There is a convenient measuring stick for entire capacity," Honeycutt said. "A year ago at this time, premium mills had full schedules till the first quarter. Today you can get delivery from premium mills in December. The premium price mills are not filled for December; they are about where they were in March when they didn't have full schedules."

Honeycutt also cited a less tangible yardstick, but one that is a valid indicator. "Last year we were getting calls every day from people who needed steel urgently; in recent weeks I have had only one call from a man who said he was really in the hole."

• What about next year?—"Shortages are disappearing fast, toward the end of the first quarter, more steel will be made than there is total demand—except for two items—sheared plates, and larger sized carbon bars," Honeycutt predicted.

"We expect to have a full order book in the first quarter, but I don't think it will be full for the second quarter. And I don't think total production next year will be as big as it was in 1951."

The demand for structural steel began to get critical after the outbreak of the Korean war in 1951. For Honeycutt, it was the fourth time in 38 years that he had seen demand swamp production facilities, and each time industrial construction was a major factor.

"Big contributors to our mills were the simplest types of fabricated steel structure—beam and column work. They had to be rolled in the first rolling cycles. They go into rolling schedules fast, are fabricated fast, are erected fast. Orders for this type of construction have been going down for some months," Honeycutt said.

Other types of construction are not taking up the slack. The big jobs coming on the books now are for atomic energy construction, and road and bridge construction, office buildings, hospitals and schools.

AEC will need roughly 30,000 tons of structurals for Oak Ridge, 25,000 tons for Paducah, and 70,000 tons for the new plant at Portsmouth, Ohio. This demand will be spread out through the year. So will construction schedules for roads and bridges, commercial and institutional construction—some of them will be spread out for several years. They will not total enough in any one quarter to make up for the decline in industrial structures.

"We would be looking for business right now if it wasn't for the strike," Honeycutt said. "With inquiries for industrial building away off, there is not enough demand for other structures to make up for it; not enough to run the mills we have at peak capacity next year."

• How about controls?—During this transition period, when short-range demand for industrial construction is dropping and long-term construction must take up the lag, Honeycutt feels the Controlled Materials Plan under the National Production Authority is confusing and complicating the adjustment. It is causing a "maldistribution."

He says the strike has messed up NPA bookkeeping to a point where it is impossible for them to distribute steel without making a "miserable failure of it."

"Steel cannot be allotted to con-

SHOULD CONTROLS BE TAKEN OFF?—The Construction Industry Advisory Committee to the NPA (pictured at its last meeting with NPA) will carry its fight against restrictions to Washington again next week.

At left above are: Rodney M. Lockwood, president, Rodney Lockwood Co., Baltimore, Md., Wray M. Scott, president, Wray M. Scott Co., Inc., Omaha, Neb.; Francis G. Addison, president, Security Bank, Washington, D. C.; H. C. Turner, Jr., president, Turner Construction Co., New York City; Max H. Foley, partner, Voorhees, Walker, Foley and Smith, New York City; T. L. O'Gara, vice president, Weyerhaeuser Sales Co., St. Paul, Minn.

At right above are: D. D. Couch, vice-president, American Radiator and Standard Sanitary Corp., Pittsburgh, Pa.; H. R. Peck, v.p., Armstrong Cork Co., Lancaster, Pa.; C. W. Moseley, v.p., R. H. Bouligny, Inc., Charlotte, N. C.; Albert H. Baum, building commissioner, St. Louis, Mo.; Walter E. Eynon, the A. C. Eynon Co., Canton, Ohio; George W. West, president, First Federal Savings and Loan Association, Atlanta, Ga.; James M. Straub, president, Fort Pitt Bridge Works, Pittsburgh, Pa.; D. S. MacBride, president, Hercules Cement Corp., Philadelphia, Pa.; A. S. Horner, president, A. S. Horner Construction Co., Denver, Colo., and president, Associated General Contractors.

struction by the quarter," he said. "The time lead from the time a job is through until steel is needed does not work on a quarterly basis. Construction needs steel by the project. Quarterly allotments create an artifical picture."

When should controls be lifted?

"Now is my time, but certainly not later than the end of the first quarter," he replied.

• AISC takes action

In two resolutions mailed early this week to top mobilizers, the AISC asked for an end of controls on building construction and removal of inventory controls on fabricators.

The first resolution pointed out the "continuing improvement in the supply of structural steel shapes and plates" which are filling claimant agency requirements; similar conditions exist with respect to other controlled materials. It continues:

"Whereas a construction operation necessarily takes many months and sometimes longer before the construction contract is let, in order to work out budget and financing problems, prepare preliminary designs and sketches, make test borings, obtain building and other necessary permits, and prepare the design and working drawings, and

"Whereas it is necessary to encourage the taking of these preliminary steps to avoid a recession and widespread unemployment in the construction industry,

"Now therefore be it resolved: That the members of the AISC . . . do hereby request that all controls imposed by the government on building construction and particularly those controls and limitations imposed by CMP Regulation 6 be removed."

In the second resolution, the AISC took pains to point out the difficulties that make inventory controls impractical. It is impossible to accumulate all the many and varied structural shapes necessary for a particular project within 30 days because many sections are rolled at the mills only once every six weeks or longer. Some sections have to be held until others arrive, before the job can be fabricated. Sometimes delays at the job site cause fabricators to hold up shipments.

AISC said there are serious doubts that the provisions of CMP Regulation 2 apply to fabricators of structural steel; but in case they do, the impracticability of imposing these inventory controls on fabricators was recognized earlier, and still holds true. Therefore the AISC asked "for a specific amendment to CMP Regulation 2," exempting them from inventory controls.

• Controls weakening

Caught in this crossfire, NPA frankly admits its defenses are low. It has neither the staff nor the means for getting regular reports from the mills on steel orders booked. Only by day-to-day analysis of complete reports could the agencies: (1) figure the volume of CMP tickets outstanding and (2) estimate the rate of attrition, or failure to cash tickets issued.

Control agencies at the moment are trying to gage the steel situation by ear. Industry men in mobilization jobs pick up clues every day from steel producers and customers. Based on these clues, a strong impression prevails that the structural shortage, for example, is much less severe than the statistics show. But they don't know.

The government people expect to get their first reading on the supply-demand situation this month. By that time, reports from the mills will give the first indications of how well the order boards are filled, what open space remains, and how many CMP allotment tickets have not been placed.

• **Showdown looms**—Steel producers and fabricators, in day-to-day touch with distribution problems, are chafing at NPA's slowness, indecision, and inaction.

Controls agencies are beginning to foresee a condition like that of March and April 1952, when improving steel supply led the controllers to relax and remove restrictions for future quarters —only to run into a steel strike. NPA expects to wrestle with the problem in a few months. Right now top officials are making no advance decisions, but the best guess is that they will have to do again what they did in the spring of this year—and this time in even more liberal fashion.

For producers and fabricators, and general contractors—they cannot do it fast enough. Some say the situation threatens to result in chaos, unless NPA recognizes its position, and offers plans for a rapid withdrawal.

One thing is certain, when the Construction Industry Advisory Committee next meets with NPA (a meeting is scheduled Oct. 29), there will be plenty to discuss; and the CIAC will be looking for more than talk.

• NPA plans askew

How wide the gap is between producers' estimates and the pencil-work of DPA-NPA, is illustrated by these facts:

Until they get more up-to-date figures within the next two weeks, the best estimates the agencies have are those put together a month ago. For structural steel, those estimates showed that allotments already issued (including the first quarter) would take the total production of structural forms and shapes up to July 1, 1952.

An estimated possible variation of 350,000 tons, to allow for changes in production and demand during the intervening months, might cut back the required period to the first week of June for filling CMP allotment orders now outstanding.

Undismayed by these discrepancies and the circumstances which cause them, NPA last week took on a new and even bigger job:

The government does not know what maximum production could be obtained from rolling mills or other finishing facilities. Last week DPA-NPA sent out questionnaire forms to the steel companies to get the answers on capacity to produce critical steel products. The controllers plan to determine available capacity for any emergency, up to and including full mobilization.

They are trying to develop maximum production figures. Then, when requirements for an emergency are known, they expect to be able to use the productive capacity to best advantage.

Ordinary company figures on productive capacity don't tell the full story on maximum possible production of steel products. With basic steel capacity going up to 123,000,000 tons, the government wants to know how much could be produced of critical finished products if need arises. Company capacity figures are based on normal product distribution in a steel plant; they don't furnish the necessary guideposts for abnormal times.

- **It's a complicated task**—Structural mills are an example, steel men in the controls agencies agree. With minor modifications inside the plants, rolling capacity could be considerably increased. In various steel plants, structural output could be stepped up by such devices as making more steel available to the structural mills, running the rolls at higher speeds, and adding yard space and shipping facilities to handle bigger production. The government hopes to find out what the maximum production would be for each mill and for the entire industry.

The maximum in each mill means the greatest production possible for each critical product. In structural mills, for example, you find rails, tube rounds, shell billets, structural shapes, and the blooms and billets for carbon bars all being rolled on relatively similar mills that often can be changed over from one product to another. Maximum ability to turn out any particular class of products in one of these mills is quite different from the product capacity figure for the same mill, based on normal product mix.

Structural shapes are included in the government survey because they are rolled on similar mills with critical products like shell billets. In event of total mobilization, mobilizers believe a freeze on civilian construction would reduce the demand for structural shapes and take them off the critical list.

After the government gets together the maximum capacity figures for the entire country, it still faces the tougher job of estimating requirements for full mobilization.

Procedures for making those estimates are still lacking.

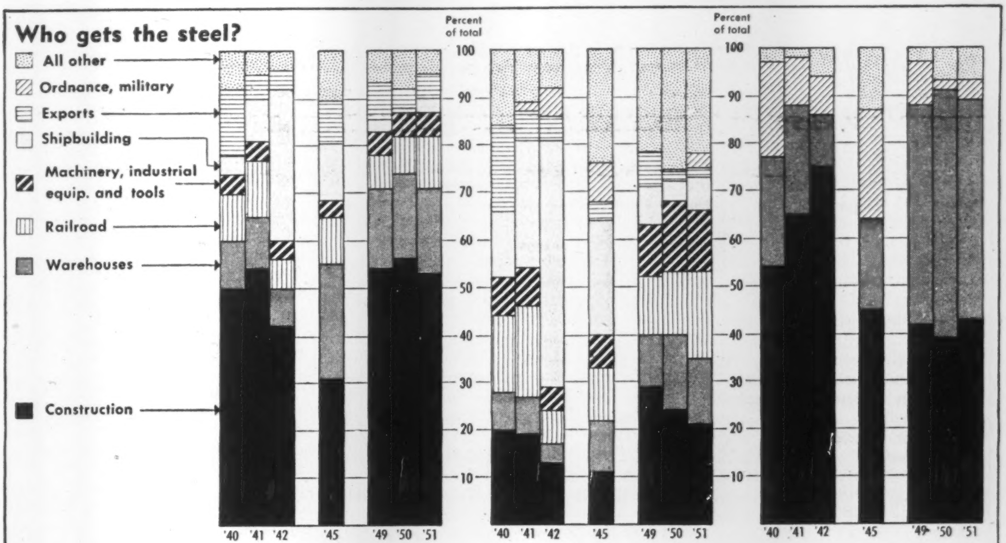
Once the requirements have been estimated, the mobilizers will attempt to distribute available capacity against total needs to obtain the best results. The distribution would be kept up to date, in an overall industrial mobilization plan, for use in event of grave emergency.

● Where are we going?

In 1951 construction and contractors products including construction equipment took a larger percentage of steel than any other industry. According to the American Iron and Steel Institute, construction and contractors products received 102.3 million net tons equal to 14.5% of the total output of finished steel. Next biggest was the automotive industry with 13.8%.

The only classification to get a larger percentage than construction and contractors products was warehouses—and a large percentage of warehouse steel also went to construction.

Who gets the steel?



Based on AISI data.

Walter S. Doxsey, assistant to president of the American Steel Warehouse Assn., Inc., points out for instance, that "during 1951 warehouses received 46% of the total mill production of reinforcing bars. I cannot tell you where these reinforcing bars were sold, but I am quite certain that most of them were used in the construction industry."

This year shipments of structural shapes and piling, plates and reinforcing bars which are the most important tonnage items for construction, will be below 1951. Estimates based on the actual totals for the first seven months of 1952, plus estimated shipments for the remaining five months, assuming a 5% increase in average monthly tonnage over the first five months of this year, show how much of a drop can be expected:

- Structural shapes and piling—5.3 million tons were shipped in 1951; 4.4 million will be shipped this year—a drop of 17%.
- Plates—7.9 million tons were shipped in 1951; 7.4 million will be shipped this year—a drop of 6%.
- Reinforcing bars—1.9 million tons were shipped last year; 1.775 will be shipped this year—a drop of 7%.

At first glance these declines would appear to seriously hurt construction; but the nature of construction has changed considerably since last year. ENR's contract awards index shows the scope of these changes in its cumulative total for the first 42 weeks of the year.

- Contract awards for industrial construction are off 36%.
- Contract awards for public buildings are up 116% over the same period last year; highways are up 25%; and bridges are up 19%.

Correlation of these two sets of facts substantiate with statistics the main reason why the structural shortage is vanishing fast. The urgent demands for industrial construction are dropping off. The 20-million tons of additional capacity being added by the steel companies since Korea, is now 90% complete. Building structures for most of the big aluminum expansions are up. Other industrial expansions have passed their maximum structural-consuming stage.

The types of construction now taking the place of these programs, in dollar volume, are long-term projects. The steel tonnages that will be required for the programs will be stretched out over a longer period of time than industrial projects were.

Unless more of these projects are authorized, a serious lag will develop in demand for structurals. At present production rates this may develop by the end of the first quarter, almost certainly by the second quarter of next year.

• Competition cutting in—Already the percentage of steel going to construction has slipped badly. In the first seven months of this year construction's share amounted to 11.9% as compared to 12.3% for all of 1951 (see chart below). However, in July construction received only 6.3%.

This decline is cushioned to some extent by larger shares going to export and to warehouses, much of which went to construction indirectly. But competition from machinery, ordnance and military, and shipbuilding, were cutting into steel supplies—particularly plate supplies.

While all other major competitors, except railroads, were getting a large share of steel, construction's share has been getting smaller and smaller since February.

This may have resulted from careful planning, or it may have resulted from confusion; in either event it was accomplished under the Controlled Materials Plan.

This trend poses a threat to construction; if continued, it can throttle construction.

Whether it will continue or not is a decision which rests squarely with DPA-NPA officials.

SHIPMENTS OF ALL STEEL PRODUCTS IN FIRST 7 MONTHS 1952

Shipped to:	Thousands of net tons			Percent of total shipments	
	1952	1951	% change	1952	1951
Construction, including maintenance	4,030	5,447	−26	11.9	12.1
Rail transportation	2,079	3,586	−42	6.1	7.9
Shipbuilding, marine equipment	435	471	−8	1.3	1.1
Machinery, industrial equipment, tools	2,014	2,365	−15	5.9	5.2
Ordnance, other military	998	561	78	2.9	1.2
Warehouse	6,699	8,225	−19	19.8	18.2
Export	1,734	1,494	16	5.1	3.3
Other	16,393	23,851	−31	47.0	51.0
Total	34,382	46,000	−25	100.0	100.0

Source: American Iron and Steel Institute

IJC completes hearings on St. Lawrence power

Final hearing by the International Joint Commission was held in Washington this week on applications of the United States and Canada for approval of construction of dams and power works in the international rapids section of the St. Lawrence River.

Strong arguments in favor of the project and the general tenor of questions and comments by the commissioners led to a widely accepted impression that the IJC probably would vote approval of the two applications within 30 days.

Strong objection to the jurisdiction of the Joint Commission in the case was put forward by a representative of the governor of Massachusetts. His arguments were promptly and thoroughly rejected by Chairman Stanley of the IJC, with the other members in obvious concurrence.

• Canada unit—The agency to build and operate the power project in Canada is the Ontario Hydro Electric Power Commission.

In the United States, the Federal Power Commission has before it the revised application of the New York State Power Authority to build and operate the U. S. half of the joint power project. Representatives of the New York State Power Authority, of the Aluminum Company of America and its wholely owned subsidiary, the St. Lawrence Power Company, appeared at the hearings to argue the power possibilities of the project. Lt. Gen. Lewis Pick, Chief of Engineers, and J. L. Kunen, of the State Dept., presented U. S. government's position.

Nothing in the two applications before the commission limits future action by Congress. Many of the proponents of joint St. Lawrence seaway and power development by the U. S. and Canada are still hopeful that as soon as a new session of Congress convenes in January it will approve the long stalemated 1941 agreement providing full cooperation of the two governments in the complete project.

Public and private housing interests mingle at NAHO convention session

By Abner Layne
Assistant Editor

Harry Ingram, construction and site engineer of Pittsburgh's Housing Authority, was confronted with a full program in his capacity as a delegate to the 19th annual meeting of the National Association of Housing Officials, in Buffalo last week. There were 85 meetings, discussion groups and lecture sessions, most of them running concurrently.

Here is the program Ingram selected for himself and what he heard and what he did:

After registering at the Hotel Statler, at 9 a.m., Oct. 14, he went right to the commercial exhibits. "You can't spend too much time at places like this," he said. "I found a key-lock electric light bulb that can be used for hallways instead of the hard-to-find left-thread screw-base bulb. I'd never have known about it if I hadn't browsed around these building products exhibits." He also found a hydraulic ram for cleaning clogged pipe lines and a paint guaranteed to stick to metal surfaces. "Getting samples of that," he said. He happily listened to sales talks and tried out gadgets for the rest of the day.

At 10 a.m. on Wednesday Ingram attended the opening session of the meeting. "I have known Clarence Klein (outgoing president of NAHO and administrator of Pittsburgh's Housing Authority) for 20 years, and I enjoy his talks." Klein denied that the Baltimore or Pasadena programs of building code enforcement could solve the housing and slum clearance problem. "Law enforcement must be coupled with . . . rebuilding," he said.

Ingram was astonished at the size of the job being done by New York City, as reported by Herman Stichman, New York State Housing Commissioner. "We have a long way to go in Pittsburgh," Ingram said.

At 12 noon Ingram attended a luncheon session where Senator John Sparkman told the convention that public housing has contributed "paradoxical as it may seem," to home ownership. Of course I like to hear people who favor public housing," Ingram said, "but I am more interested in the reports of construction details." At 2 p.m. Ingram attended a business meeting of the NAHO Technical and Maintenance Section—the section closest to his heart and with which he is most closely identified. "It was a bang-up meeting," he said, "but I guess you'd have to be really interested in our section to think so. We decided on an extended program of research." At 4:30 Ingram attended a group discussing good design: "the goal of the architect—efficient operation the goal of the maintenance man. How can they get together?" The meeting was presided over by Ingram's good friend and colleague, William Schlenke, technical director of Pittsburgh's Housing Authority.

PHILIP KLUTZNICK, president of American Community Builders, Inc., urged public and private housing to cooperate.

Robert McLaughlin of Holden and McLaughlin, architects, and at present the director of Princeton's school of architecture, told the group that after such major decisions as the building type and the site had been made, the maintenance man can furnish the architect with data out of his experience to help design for efficiency. McLaughlin also suggested that public housing set aside $1 million out of its funds for research and experimentation. (This plea was repeated several times by other speakers during the meetings.)

Philip Kent, senior engineer of the Chicago Housing Authority, spoke for the maintenance man. Kent said that the architect should include mechanical controls necessary to prevent costly utility losses. "It's a good idea to experiment," Ingram said, "but out in Pittsburgh they won't even let us build an elevator apartment building for a low-cost project even when it is both needed and economically sound."

At 7:30 that night Ingram conducted his own session, listed as "smoker and movie night for members of NAHO's technical and maintenance staff section and their friends." He mixed drinks and also managed to show six moving pictures on safety and fire prevention.

The next morning (Thursday, Oct. 16) he missed a breakfast discussion at which David Crane of Backus, Crane and Love, architects, of Buffalo, discussed the relations between the architect and the local housing authority. "Bill Schlenke filled me in on it," he said. "Architects want more freedom in designing, seems to be the gist of it."

• Highlight of sessions—At 10 a.m. he attended what he considered the highlight session of the annual meeting—a report of the research committee of the technical section. The reports were compiled from over 1,000 questionnaires sent to housing managers all over the country. "These reports (on paint, corrosion and roofing) give us much-needed data," he said. "It's almost as good as experimentation."

Corrosion resistance for pipes and tanks by use of cathodic protection was recommended although it is still an experimental method. Reliance on accelerated weathering tests for paint was cautioned against. Replies concerning roofs indicated that most leaks resulted from failures in flashings and gravel stops.

At 2:30 p.m. he listened to a panel entitled: "lessons from a private developer for public housing design, construction and operation."

"Philip Klutznick spoke as a man who had worshipped in two temples—public (Klutznick had been Public Housing Administrator) and private (he is the president of the American Community Builders, Inc., builders of Park Forest, Ill.) housing."

Klutznick made two points which Ingram noted carefully: design for maximum tenant maintenance and design for maximum freedom to develop community activities in accordance with the desires of the tenant. Klutznick also asked that a certain portion of public housing money be dedicated to experimental building. He asked that 5-10% of the total be so used. That afternoon Brown Nicholson, executive director of the Columbus, Ga., Housing Authority, was elected president of NAHO.

The next morning (Friday, Oct. 17), Ingram got another fill-in on a breakfast discussion with David Hannah, president of Border Construction Co., of Buffalo, who talked about the relationship between the general contractor and the local authority. Hannah made a plea for more responsibility for field personnel who could make job decisions without "referring everything to distant headquarters." At 10 a.m. Ingram made a determined effort to be in two places at once. First he sat in on a panel discussing "Housing, Planning, Development—A Team," and heard men from all three departments present their sides of the case and what each expected from the other members of the team. "You've got to work with everyone from municipal departments to Washington headquarters if you want to get anything done," Ingram said.

He left the panel at midpoint—"I heard all three sides," he said, and hurried to a discussion of new construction materials and cost reduction in multi-story housing. Robert L. Davison, research director of Hoard Fisher and Associates, New York City, described savings he thought could be made by using cellular construction.

The method which he cited involved using load-bearing partition walls of scrap brick. James T. Lendrum, director of the Small Homes Council of the University of Illinois, described the savings possible from using truss construction for roofs. At 12:15 in the afternoon the meeting was officially at an end, and Ingram was free to leave for home. However, he decided to go out and look at the Dante Place housing project put up by the Buffalo Housing Authority.

Riley group chides services on construction

A House subcommittee has just completed a long look at military public works in continental United States although no scandals, messes or alarming conditions were turned up, it was concluded that there is plenty of room for improving construction practices of the military services.

The report, released this week, is the work of the Riley Subcommittee of the House Committee on Appropriations. This is the same committee that recently reported on construction practices in construction of Moroccan air bases that was at odds with sensational charges made by the Senate Preparedness Subcommittee (ENR Oct. 9, p. 24).

The committee visited bases throughout the U. S. last fall, and during the winter and spring conducted hearings at which military services replied to charges made by the committee.

These were the principal areas of criticism:

- Contracting—the three services are guilty of overuse of negotiated and cost-plus-fixed-fee type of contracts; the committee held that in many instances the traditional lump-sum, advertised-bid contract should have been used.
- Planning—All services were found guilty of failing to plan military construction adequately, particularly the Air Force.
- Standardization—The services have failed to standardize repetitive type of structures—such as mess halls, warehouses, barracks, etc.
- Austerity—Services have failed to comply with austerity standards called for by President Truman.
- Corps of Engineers—Its experienced personnel is spread too thinly over a great volume of critical military construction.

The committee acknowledged that the Korean conflict presented a difficult problem for construction because it fitted neither of the military's normal construction patterns. In time of peace military construction tends to be of a permanent nature and goes along slowly. In all-out war construction tends to more of a temporary nature and speed is of the essence. But Korea didn't fit in either slot.

• **Korea, cold war blamed**—The committee found that the Korean war plus the specter of a long cold war produced a construction pattern calling for permanent structures, built speedily, and austerely. The committee found that having to build according to these specifications produced many of the conditions with which it found fault.

This applied particularly to planning. Frequent shifts in plans created a construction headache, the report found. In the Air Force, for instance, an airfield that was planned for use of medium bombers would be changed to a heavy bomber field in mid-construction. The committee acknowledged that in many cases such a shift was inevitable, but it concluded that not enough attention was given to planning in advance so that plans would have to be altered as little as possible during actual construction.

The committee noted that throughout the services there was a repeated need for certain buildings which serve the same essential purposes. This circumstance, the committee observed, gave an opportunity to save building time and money and to reduce confusion by standardizing plans. This could be applied to mess halls, barracks, bachelor officers' quarters, warehouses, etc.

But the committee found a wide variation in the design, cost, and accommodations offered by such buildings as were erected during the period of study. It said these variations existed not only among the services but within a single service.

The committee found many examples of over-elaborate design which poorly served the austerity program that had been laid down by the President and implemented by directives from secretaries of the three services.

These excesses took the form of unnecessarily luxurious fittings, appointments, and materials. A small cafeteria erected for Army ordnance at the California Institute of Technology, for example, had a pair of $700 plate glass doors set in bronze frames. A Strategic Air Command base in the Midwest had an elaborate terrazzo stairway with an ornamental iron railing in the control tower. Excessive plastering, terrazzo flooring and excessive use of plate glass windows was noted at a Navy barracks at Memphis, Tenn.

The committee found that during the 14-month test period of contracts of $1-million or over, the Navy made four negotiated contracts in excess of this amount, the Corps of Engineers made 18 negotiated contracts for the various bureaus of the Army and 67 for the Air Force.

• **Would limit cost-plus**—The committee also found frequent use of cost-plus-fixed-fee contracts and concluded that this type of contract is justified only in two instances: Where the need for construction is so urgently acute that planning and building must start at the same time, or in rehabilitation work where it is unfeasible and inefficient to draw plans and specifications.

In finding that experienced personnel of the Corps of Engineers was being spread too thin on critical construction, the committee recommended that more experienced officers be assigned to sensitive work areas.

The committee noted that the services have moved to correct some of the practices brought to light during the hearings and that $72-million already has been saved this year.

The committee also decried the practice of the services in spending all money available of either the year-end or no-year variety before the end of the fiscal year regardless of the interests of economy.

After releasing its report committee members and staff left for Europe where they will spend two months inspecting all European and North African bases. After they return, hearings will be held, to be followed by a report later in the year.

New ASCE leader, in first address, sees continued push for free enterprise

The engineering profession, under the leadership of the American Society of Civil Engineers, will not lose sight of its responsibility to guide and lead in the advancement of the public good, Walter L. Huber of San Francisco told the ASCE's Metropolitan Section in New York Oct. 15.

Mr. Huber—long an officer of the society—was making his first address to members in his new capacity as President of ASCE, the 84th man to hold that post.

In a talk that gave evidence that his administration would follow the aggressive lead of previous one in support of the free-enterprise system, Huber told his audience:

"The engineer has been slow to appraise the changed state of the thought of the nation.

"Accumulations of capital beyond those formerly visualized are necessary for constructing the great works now required. Many of these accumulations are thought—often without reason—to be beyond the range of private capital. More and more it has become the habit to turn to the public purse—national, state and local.

"Unfortunately, much of the direction of public spending is done without due consideration of economic and engineering fundamentals. The engineer has, in too many instances, allowed the top command to fall to others who may have greater personal appeal . . . but who do not have the training, experience, or even the respect for sound economic or engineering analysis requisite for proper guidance.

"The engineer must assume the responsibility of furnishing and guiding public leadership to an extent which has never been done before.

"Many of the conditions confronting the engineering profession have resulted from failure to assume intelligent, forceful leadership. The tendency to shirk responsibility at all levels is too common."

• New man, new method—Mr. Huber is the first president of the society to take office at a business meeting held in New York primarily for the purpose of inducting new officers.

Under the society's new constitution—adopted two years ago—the society's annual meeting is to be held in New York during the third week in October, and annual reports, induction of officers and other business transacted at that time. However, since the technical sessions of the annual meeting were held in Chicago in September (in conjunction with the Centennial of Engineering) only a business meeting was scheduled for New York this year. The business meeting, in turn, was combined with a session of the Metropolitan section.

WALTER HUBER—elected to fill driver's seat of ASCE.

Ten other society officers were declared elected at the same session—although a number of them will not assume their new posts until January. They are as follows:

Edmond Friedman, Miami, Fla., vice-president, Zone II; G. Brooks Earnest, president of Fenn College, Cleveland, vice-president, Zone III; Lloyd D. Knapp, Milwaukee, director, District 7; Glenn W. Holcomb, Corvallis, Ore., director, District 12; Charles B. Molineaux, New York City, director, District 1; A. A. K. Booth, Troy, N. Y., director, District 3; Carl G. Paulsen, Washington, D. C., director, District 5; Warren W. Parks, Indian Hill, Ohio, director, District 9; Mercel J. Shelton, San Diego, director, District 11; and Francis M. Dawson, Iowa City, director, District 16.

• Career—Mr. Huber, a graduate of the University of California, is well qualified to discuss the question of public vs private work. His long career as a consulting engineer since he established his own office in San Francisco in 1913 has seen him working on both sides of the fence. His practice has included structural and hydraulic work, including many of the important structures on the campuses of the University of California, numerous commercial structures among which is the four-story underground garage at Union Square in San Francisco. He also has served as consultant to private and public water districts on many projects, and during the war and since has directed the design of several base hospitals, water supply systems and other works for the federal government.

Awards made for welded bridges

The James F. Lincoln Arc Welding Foundation of Cleveland this week announced awards in its 1952 bridge design competition.

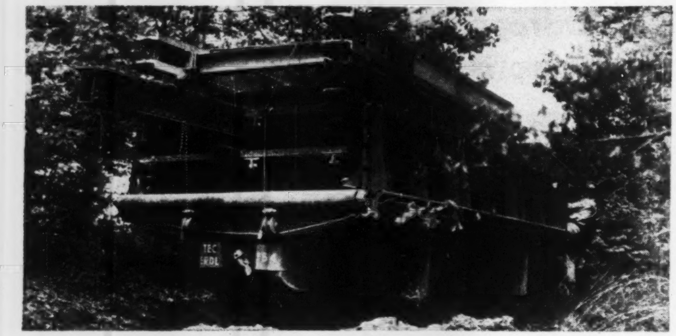
A. F. Davis, foundation secretary, said the award program, sponsored to encourage the creation of bridge designs which conserve steel, attracted designs from designers in all sections of the country. Designs showed an average saving in steel, through welded construction, of approximately 20%.

First award of $7,627 went to Elwyn H. King, Long Beach, Calif. His design of a seven-span girder bridge of cantilever construction carrying six lanes of traffic on a divided roadway showed that there was a 24% saving in steel over comparable riveted design.

Kiser Dumbauld of the Ohio State Highway Department received the Second award of $3,635 for his redesign of a continuous haunched deck girder-type structure 798 ft long. His design showed a saving in steel of 18% would have been made if the bridge had been welded. Dumbauld has received main awards in two design contests.

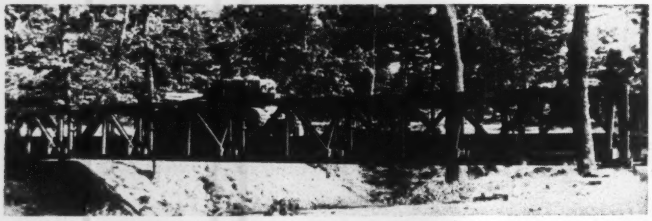
Third award of $2,078 was shared by Thomas Kavanagh and Leo Coff of New York University and Pennsylvania State College respectively. They designed a three-span continuous-deck girder bridge 990 ft long that carries a 36-ft roadway. Composite construction with prestressing of both concrete slab and steel girders indicated savings in steel of 21%. This is the third time an award in this competition has gone to Kavanagh, who recently became head of the department of civil engineering at NYU.

Honorable mention awards of $312 each went to: Henry F. Gauss, Moscow, Ia.; Horace O. Titus, Cheyenne, Wyo.; R. W. Ullman, Cleveland; Nan-sze Sih, Long Island, N. Y.; Alan R. Cripe, Cleveland; James H. Jennison, Pasadena, Calif.; Adam Werth, Brooklyn, N. Y.; M. W. Elkow, Yonkers, N. Y.; R. Reikenis, Baltimore; Milton D. Randall and Farland Bundy, both of the Texas Highway Department, Austin.



A TRUCK carrying the T6 tactical bridge wheels into position . . .

ALUMINUM MEMBERS are easily handled, rapidly erected . . .



AND AFTER ERECTION will support division loads.

"Heavy" tactical bridge made light

After five years of design, development, and testing the U. S. Army Engineers have come up with a new "heavy" tactical bridge that will soon be in mass production.

An aluminum structure, the T6 boasts the following advantages over its predecessors:

1—It can be erected faster than any other heavy tactical bridge. A 75-ft length of it can be erected in approximately one-third the time required for the same length of the old Bailey Bridge.

2—It is wider and can support about 50% greater loads than comparable World War II bridges.

3—Strong enough to carry divisional loads, it can be quickly modified into a T7 bridge for the additional strength to carry army loads.

Capable of spanning 180 ft, the T-6 is put together in sections with the floor beam resting on the lower horizontal member of the truss panels. Deck panels are laid over the floor beams. To convert it into a T7, the same truss panels are used, but the floor beams and panels are changed to widen and strengthen the bridge's roadway.

Simplicity in design is supplemented by use of alloy structural steel to keep the structure light. In test models Aluminum Company of America's 14S-T6 structural alloy was used.

Developed by the Army's Research and Development Laboratories at Fort Belvoir, Va., with Alcoa and Pittsburgh-Des Moines Steel Co. cooperating, the bridge has been given extensive pilot model and operational field testing recently.

Alumina plant starts round-the-clock work

Signalizing the start of 24-hour-a-day production, officials of two Alcoa subsidiaries last week pulled the lever to tilt a 22-ton truckload of bauxite into the processing hoppers at the Aluminum Ore Company's new Bauxite, Ark., Alumina plant.

Allen B. Williams of St. Louis, president of Aluminum Ore Co., and Lawrence Litchfield, Jr., of Pittsburgh, president of Alcoa Mining Co., were on hand to mark the beginning of the round-the-clock operations at the bauxite alumina works which, for the last few weeks, has been producing alumina on a test operation basis.

With an ultimate annual capacity of 800,000,000 pounds of alumina, the plant is the newest link in a $350-million Alcoa expansion program and will boost Alcoa's aluminum-producing capacity by about 50%, according to company officials.

Full production at the bauxite works will be reached about March 1, when construction of the $54-million sintering plant is completed. Fifty buildings occupy the 125-acre site located southeast of Little Rock. The most prominent of the structures is a cluster of 72 precipitator tanks—low-story high steel tanks—each with a 200,000-gal capacity.

Water from Hurricane Creek, 80 ft below the site, is pumped into a 200-acre artificial lake with 432,000,000 gal water reserve.

About 9,000,000 cu ft of natural gas will be needed each year for the plant's operation. The refining process will require 1,000 tons of limestone daily, to be quarried at Love Hollow, near Batesville, Ark. Approximately 50,000 tons of soda ash will be used annually.

Ohio Turnpike awards

The Ohio Turnpike Commission awarded its first major construction contract Saturday to the Horvitz Co., Cleveland.

The firm was low bidder among 17 with a bid of $1.1 million for the substructure of 2,700-ft. twin bridges across the Cuyahoga River Valley, Summit County. Gov. Frank J. Lausche will participate in groundbreaking ceremonies Oct. 27, marking first construction work on the 241-mi, $320-million super highway which will span northern Ohio. The commission also awarded soil test-boring contracts to the Mott Core Drilling Co., Inc., Huntington, W. Va., for a 15-mi section in Ottawa and Sandusky Counties; and to the Cunningham Core Drilling and Routing Corp., Salem, Va., for a 15-mi section in Wood and Ottawa Counties.

World's biggest sphere to house sub reactor

Safety of off-site residents was the prime consideration in designing a 225-ft steel sphere to house a nuclear submarine power plant being built by the Atomic Energy Commission for the U. S. Navy.

Work has been completed on a saucer-shaped foundation for the sphere on a 4,000-acre site at West Milton, N. Y. near Schenectady, and assembling of the hull of the land-based submarine prototype is under way.

The Submarine Intermediate Reactor (SIR) project is under direction of the Knolls Atomic Power Laboratory, operated at Schenectady for the AEC by General Electric Co.

Primary purpose of the sphere, the world's largest, according to the AEC, is to deter release of radioactive material to populated farm and urban areas surrounding the project, should reactor safety controls fail.

The foundation was designed by the Chemical Plants Division of Blaw-Knox Construction Co., Pittsburgh, Pa., and was built by Ardini and Pfau, Inc., of Syracuse, N. Y. in 59 days. Its diameter is 179 ft and depth, 38 ft. It contains 18,000 cu yd of concrete.

A ring of 26 steel columns, 74 ft high, outside the sphere and reaching to its equator, will give further support to the structure. Made of ¼-in. thick plate, columns are 2 ft in diameter.

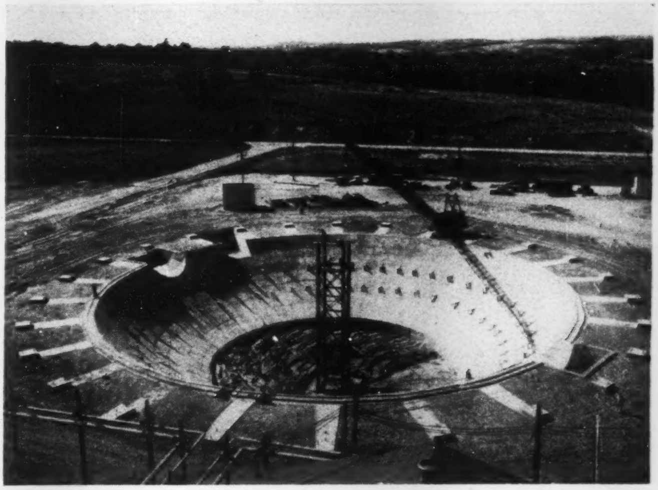
The ball, which was designed and built by Chicago Bridge & Iron Co., Chicago, will be made of 682 butt-welded plates, each about 9x32 ft, by 1 in. thick. As soon as the supporting columns are in place, the first ring of plates forming the sphere will be placed around the equator, and assembly will proceed both upwards and downwards. The plates will be erected with a derrick mounted atop a temporary central steel tower. All welds will be tested by X'Ray Engineering Co., of Mill Valley, Calif. Meanwhile, the hull of the submarine will be assembled outside the building. When the sphere has been completed and tested, the hull will be moved into it through a removable wall section, and then it will be sealed again.

Inside the ball, a concrete floor that will support the reactor will be cast to a depth of 3 ft over compacted earth.

Weighing 3,850 tons, the sphere was designed for a 15-psf wind load on its projected area and snow and ice load of 25-psf on the upper 60-deg portion. The structure will be insulated and weather coated, and the interior will be air conditioned.

There will be two entrance locks in the sphere, each consisting of a 16½-ft sphere. This shape was chosen to obtain circular intersections with the large ball to avoid points of stress concentration. Welds around entrances will be stress-relieved prior to assembly. Doors will be of the double, water-tight, ship bulkhead type.

The Submarine Intermediate Reactor is one of two nuclear science approaches being made to the problem of utilizing atomic fuel for underwater ship propulsion. The other is incorporated in a project at the National Reactor Testing Station in Idaho, and is operated by Westinghouse. The reactor designed for the West Milton site will use liquid sodium metal to take the heat out of the reactor core and conduct it into an exchanger or "boiler" where water will be converted to steam. The steam will then drive the turbines that propel the submarine.



CONCRETE SAUCER, just completed, forms bed for sphere which will house AEC's nuclear reaction submarine power plant.

$138 million AEC work due Kaiser

Award of contracts totaling $138 million for its phase of an expansion program for the Hanford, Wash., project of the Atomic Energy Commission is expected by the Kaiser Engineers Division of the Henry J. Kaiser Co.

Kaiser Engineers' contract will reach about $110 million of which nearly $60 million will be required for specialized equipment and normal construction materials to be procured through local and national suppliers and manufacturers.

Kaiser Engineers said it has been informed by the AEC that it will award several additional prime lump sum contracts totaling about $28 million for connected work involving facilities, including administration building, shops and chemical storage facilities.

About 58% of the work involved in the $138-million program will be subcontracted by Kaiser Engineers or will be let as prime contracts by AEC on a competitive basis. The AEC has called for bids for one project.

It is expected that Kaiser Engineers will obtain competitive bids on equipment and materials as well as on work to be subcontracted. There are more than 900 men on the Kaiser payroll now at Hanford, a number which is expected to be swelled to 1,500 by year's end. A total peak of 11,000 should be reached in mid-1954, according to the Kaiser firm.

Paducah work force reduced as second phase is begun

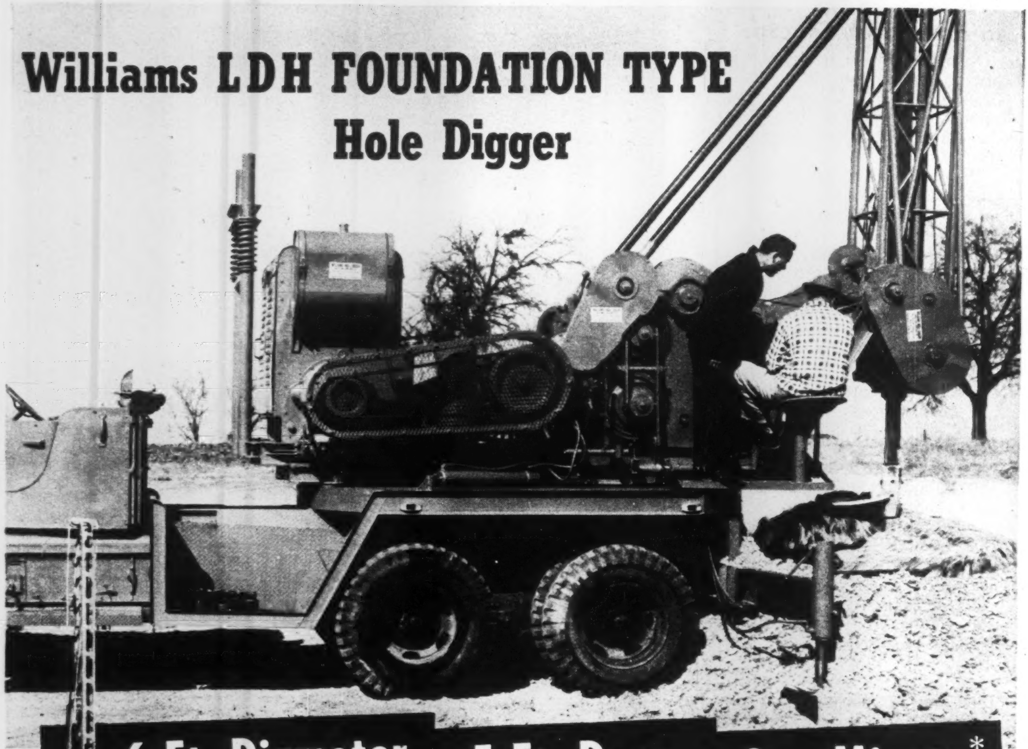
About 1,700 workers have been cut from the Paducah, Ky., Atomic Energy Commission project work force.

E. A. Wende, AEC Paducah-area manager, gave these reasons for the reduction:

Completion (or near completion) of secondary facilities; winter reduction of outside work; force reduction in the interest of job efficiency.

About 23,000 field workers were on the project at the height of construction. About 10,000 field workers will be employed on the project for the next two or three years.

Williams LDH FOUNDATION TYPE Hole Digger



6 Ft. Diameter . . 5 Ft. Deep . . One Minute*

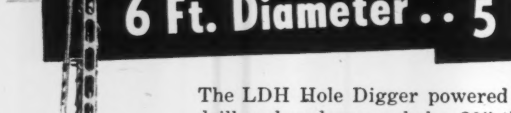
The LDH Hole Digger powered by 427 cubic inch class power units or larger can drill and underream holes 20″ through 96″ in diameter to depths up to 40 feet in ordinary soils.

A flexible Wiggle-Tail Base permits fast setting-up over exact hole location on both vertical and batter holes. Rapid penetration into most formations is assured by engine horsepower being converted into tons of pressure on the drilling tool.

Carefully engineered and ruggedly built Williams Hole Diggers will give good service with a minimum of maintenance. Write or phone for complete details and specifications.

*In normal soil conditions.

The MDH Type is powered by 330 to 427 cubic inch engines for holes 16″ to 72″ in diameter up to 20 feet deep.



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Open-shop builders charge pay scale is unconstitutional

Attorneys for Baltimore, Md., last week denied the charge of a group of non-union contractors that the prevailing wage scale established by the Board of Estimates for workmen on municipal jobs is unconstitutional (ENR Sept. 11, p. 44).

The contractors had charged, among other things, that the Maryland constitution provides that the law-making power of the city must be vested in a legislative body and that the constitution was violated when the City Council attempted to place legislative power in the hands of the board and permitted it to determine municipal wage scales.

Thomas M. Jacobs, assistant city solicitor, and Joseph Sherbow, who has intervened in the case in behalf of several building trades unions, told Judge Michael J. Manly at this week's pretrial hearings that the board's action was not only constitutional but the only practicable method of determining wage scales.

They said the City Council "handed over" the power to establish wages to the board because the determination of the scales was an executive task which could only be carried out by experts.

• **Answer**—Answering a charge that the scales are "arbitrary," Jacobs said that the city wages conform to those paid in the Baltimore area.

The contractors asserted in their suit that the city did not determine the scale of wages in the generally accepted method—basing the scale on the wages paid to the majority of workers in a given area.

Jacobs also noted that paying lower wages than those now in effect might be false economy because the net result could be sub-standard work.

In summing up the city's case, Sherbow asserted that the question at issue was not one of union versus non-union pay rates because the city projects come under the heading of "big building," in which the union-scale is the accepted scale.

Wilson K. Barnes, representing the non-union contractors, charged that the pay rate was a maximum rate. He also said that the board's action eliminated the open-shop competition of the firms he represented.

Judge Manley withheld his decision awaiting further briefs. He told the attorneys that he thought the main issue was whether the council had the right to delegate the wage determination to the Board of Estimates.

Union workers strike AFB over non-union contractor

A union shop controversy halted work at the Dover, Del., Air Force Base last week. The strike halted construction of barracks and mess halls, hangars and aprons for planes on alert duty, and petroleum facilities.

The construction work is part of a multi-million-dollar expansion program preparing the Dover base to be one of the world's largest Military Air Transport Service installations.

Workers of the Ajax Construction Co., Washington, D. C., the Wilson Construction Co. and the Golder Construction Co., both of Philadelphia, Pa., and the Cuyahoga Wrecking Co., of Cleveland, Ohio, went on strike.

The object of the strike is the firm of Pleasanton and Edgell, a non-union Dover, Del., firm doing a $522,000 drainage and sewer job for the Air Force.

Col. Paul Zartmann, commanding officer of the Dover Air Force Base, said that most of the work involved is being done under a 300-day contract, and that the strike will not affect the overall building and expansion program unless it continues for some time.

Right-to-work law under high court review

The U. S. Supreme Court agreed last week to hear an appeal from a Virginia court decision that picketing of a Richmond school construction job violated that state's "right-to-work" law.

The building and construction trades unions picketed the project with one picket at a time carrying the sign, "This is not a union job."

The Law and Equity Court of Richmond issued an injunction stopping the picketing. The state court of appeals affirmed the finding.

Now the unions are seeking a Supreme Court review on the ground that the picketing was done solely for communication purposes.

The state law, about which the case revolves, declares it to be public policy that the right of persons to work should not be denied or abridged on account of membership or nonmembership in any labor organization. The law also provides that any combination between employer and labor union whereby non-union workers are denied employment is illegal combination or conspiracy.

The prosecution contended that the purpose of the picketing was to make the construction job 100% union and thereby deny non-members of unions the right to work.

The case involves Local 10 of the plumbers and steamfitters.

• **Other decisions**—The Supreme Court also dismissed an appeal challenging a Michigan law that prohibits strikes by public employees. AFL transit employees in Detroit contended that the state law was unconstitutional.

The court, acting on the request of the city of Detroit, dismissed the appeal.

$464-million project resumes after shut-down

A brief work stoppage at the site of the $464-million plant unit in the Oak Ridge, Tenn., gaseous diffusion area ended last week when some 50 truck drivers and 80 plumbers returned to work.

The plumbers had been off the job about 2 weeks and the drivers for about 2 days. A full field force of 2,000 was back at work.

The truck drivers struck over the laying off of several drivers because of wet ground. The plumbers left because of the firing of a plumber. Neither group had filed an official protest with the company.

Wage differential

The U. S. Court of Claims last week told the Army Engineers to give $7,436 to the Binghamton Construction Co., of Binghamton, N. Y. The money represents the difference between the wages paid by the concern—which were specified in a contract for the construction of a flood control project on the Chemung River in Elmira, N. Y.—and the wages specified by the Secretary of Labor to be the prevailing area wage at the time of construction.

USAF study shows labor efficient

During 1951 and the first quarter of 1952, over 15% of the value of all contracts for military and Naval construction was for troop housing.

A study, made by the Department of Labor, of the case histories of three building projects for Air Force personnel concerning the length of time required for construction, showed the efficiency with which labor was used.

- The smallest project took 34 weeks to reach 99% of completion; the largest took 27 to reach the same stage.
- The smallest took 145,000 man-hours per $1 million of construction; the largest took 115,000 per $1 million of construction.
- The smallest put in $6.92 worth of work per man-hour; the largest put in $8.69 per man-hour.

The majority of the site workers were in the skilled trades and, of the skilled trades, carpenters were the largest single occupational group.

The pattern of employment was characterized by a rapid expansion of the labor force a few weeks after construction started with four-fifths of the total site employment concentrated in half the period of construction.

Although individual contractor's and worker's performance are important factors in cost, experience on the dormitories suggests that labor was utilized more efficiently as the number of dormitory buildings covered by the contract increased.

Speed was a prime consideration in the construction of troop housing. The contracts required that work was to begin within 10 days after the award date. They further specified that the contractors were to use night shifts and overtime operations if necessary to maintain the approved progress schedules.

Peak employment on the largest project was about 650 workers compared with a maximum force of about 180 on the smallest.

Dormitories

The dormitories were two-story buildings with partial basements. They were frame construction, with concrete and masonry foundations and basements. The outside walls were asbestos-shingle siding over wood sheathing. Windows were double-hung wood. The roofs—almost flat—had built-up roofing.

The interior finish made extensive use of wood. The wood floors were covered with asphalt tile. Walls were of wall board with plywood wainscoting. Plywood was used extensively for interior cabinet work.

Toilet rooms contained shower stalls, tile floors, ceramic tile wainscoting, and plastered upper walls and ceilings.

Comparison of projects

	Project A	Project B	Project C
Contract amount	$3.1*	$1.9*	$0.8*
Number of man-hours worked	362,200	251,700	119,800
Average hourly earnings	$1.92	$2.09	$2.12
Percent earnings to contract	22	28	31
Value of work per man-hour	$8.69	$7.54	$6.92
Man-hours per $1 million	115,000	133,000	145,000

* In millions of dollars

Citizens committee fights A-plant strikes

When a $1-billion A-plant has over 60 work stoppages at a cost of 2,775,000 man-hours, something must be done. So reasoned the Citizens Committee for Industrial Harmony of Paducah, Ky.

The committee was established last week to look into the causes and possible cures of the A-plant situation as well as numerous other work stoppages in the area.

Labor unrest has not been confined to the A-plant project which is being constructed by F. H. McGraw & Co., Inc. Construction of the $175-million electric generating plant at Joppa, Ill. (just across the Ohio River) and of the TVA's Shawnee steam plant, have been interrupted several times.

In the same area, manufacturing plants have also been shut down by strikes. Rivalry between AFL and CIO unions has been blamed for strikes outside of the construction field.

Here is a summary of the possible causes for labor unrest which the committee will investigate:

- A bad start made when the project was begun without any labor-relations planning.
- The A-plant contractor's alleged lack of a consistent policy towards unions.
- A union theory that the A-plant contractor, by changing the director of labor relations too frequently—four times in 21 months—is at fault.
- Another union charge that the contractor delays executing union policy decisions.
- A charge that the company has left much of the work of communicating with workers to the unions and that rumors instead of facts prevail.
- The quick expansion — explosion some say—of the unions. And the inability of the union business agents to handle the new membership.
- Parochialism on the part of the business agents, none of whom seem interested in labor as such.
- Lack of discipline because "there's always another job to be had."
- The McGraw company's estimate that jurisdictional disputes account for 80% of the walkouts. And that these walkouts originated in disputes among just three unions — laborers, pipefitters and carpenters.

Contractors' agreement ends air center strike

Capitulation of seven of the eight prime contractors on the Air Force's $170-million Arnold Engineering Center at Tullahoma, Tenn., last week ended a three-day strike of 750 construction workers.

The strike had blocked work of some 1,600 men on the center, which is being built for the Air Force under supervision of the Corps of Engineers. It includes a giant wind-tunnel and other research structures.

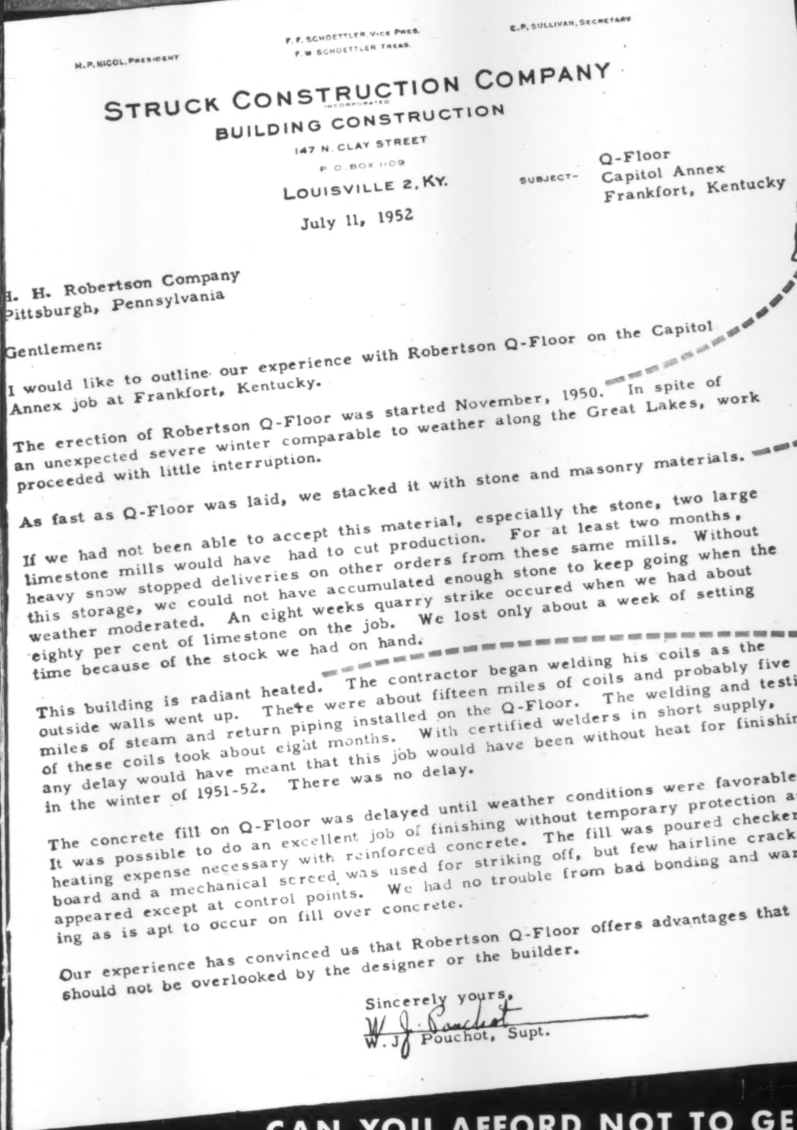
The men walked off the job Oct. 13, after the breakdown of long negotiations with the contractors over retroactive pay. Last August, the Construction Industry Stabilization Board approved wage increases ranging from 7½ cents to 15 cents an hour for five construction trades in the Chattanooga area (which includes Tullahoma) and authorized making the pay increases retroactive to May 1. General contractors in the area reportedly agreed on retroactive provisions, but contractors at Tullahoma balked at the provision.

However, Col. Hugh M. Arnold, U. S. district engineer, said Oct. 16 that seven of the eight prime contractors had given consent to the May 1 date.

READ WHAT A CONSTRUCTION COMPANY SAYS ABOUT Q-FLOORS

CAPITOL BUILDING ANNEX
FRANKFORT KY.

Meriwether, Marye & Assoc., Architects



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SUBJECT- Q-Floor
Capitol Annex
Frankfort, Kentucky

July 11, 1952

H. H. Robertson Company
Pittsburgh, Pennsylvania

Gentlemen:

I would like to outline our experience with Robertson Q-Floor on the Capitol Annex job at Frankfort, Kentucky.

The erection of Robertson Q-Floor was started November, 1950. In spite of an unexpected severe winter comparable to weather along the Great Lakes, work proceeded with little interruption.

As fast as Q-Floor was laid, we stacked it with stone and masonry materials.

If we had not been able to accept this material, especially the stone, two large limestone mills would have had to cut production. For at least two months, heavy snow stopped deliveries on other orders from these same mills. Without this storage, we could not have accumulated enough stone to keep going when the weather moderated. An eight weeks quarry strike occured when we had about eighty per cent of limestone on the job. We lost only about a week of setting time because of the stock we had on hand.

This building is radiant heated. The contractor began welding his coils as the outside walls went up. There were about fifteen miles of coils and probably five miles of steam and return piping installed on the Q-Floor. The welding and testing of these coils took about eight months. With certified welders in short supply, any delay would have meant that this job would have been without heat for finishing in the winter of 1951-52. There was no delay.

The concrete fill on Q-Floor was delayed until weather conditions were favorable. It was possible to do an excellent job of finishing without temporary protection and heating expense necessary with reinforced concrete. The fill was poured checker-board and a mechanical screed was used for striking off, but few hairline cracks appeared except at control points. We had no trouble from bad bonding and warping as is apt to occur on fill over concrete.

Our experience has convinced us that Robertson Q-Floor offers advantages that should not be overlooked by the designer or the builder.

Sincerely yours,
W. J. Pouchot
W. J. Pouchot, Supt.

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WORLD-WIDE BUILDING SERVICE

IDEAL STREET PATTERN for Babbitt, Minn., loop system, with collector streets leading directly to the shopping center or to the highway. Objectives: greater safety for pedestrians, more privacy for residents, and more area for recreation.

Taconite brings the modern mining town

THE NEW TACONITE ORE FIELDS in Minnesota—steel industry backstop for raw material when the high grade ore bodies are worked out—are also the scene of a revolution in mining towns.

Instead of the drab shanties associated with such communities in the past, modern houses and all of the civilized amenities that go with them are to be the mark of the mining town of the future.

This, at any rate, was the objective of the Reserve Mining Co.—owned jointly by Republic Steel Corp. and Armco Steel Corp.—when it launched its multimillion-dollar taconite development program in 1950, and turned over a large part of the job of planning, designing and developing two townsites to Pace Associates, Chicago.

The result: Two modern and distinctly different types of towns, each tailored to fit different topography, geology and climate, and both designed to meet the sociological and other living requirements of their future occupants.

• **Where located**—One town is being built near the old townsite of Babbitt, 15 miles south of Ely, Minn.—the last outpost for the renowned fishing area of Canada, 20 miles to the north. It will retain the name of "Babbitt."

The other town is being built near Beaver Bay, Minn., on the north shore of Lake Superior, 55 miles northeast of Duluth. As yet unnamed, it is part of Reserve's Lakeside development.

The two towns will be about the same size; each planned for the eventual development of about 1,300 homes to house 5,500 persons. Eighty houses were built at Babbitt last year and an additional 45 will be finished this season, together with 125 single-car garages. At Lakeside, the first 20 houses will be completed this year, also 4 six-family row houses, 10 single-car garages, and 6 garage compounds holding 9 cars each.

• **Who will occupy**—Initially, Babbitt will house supervisory personnel, engineers, technicians and other employees in Reserve's new 300,000 ton-per-year plant for processing taconite ore, located nearby. Ultimately, it will house employees operating a taconite mine now being opened up, and a huge primary crushing unit to be built in that area.

The town at the Lakeside project will house the company's operating personnel for its 3,750,000 ton-per-year taconite processing plant and shipping harbor now under construction at that point on Lake Superior. The company has long-range plans for increasing the capacity of that plant to 10,000,000 tons of high-grade iron ore pellets per year.

TWO-BEDROOM TYPE: FHA REQUIREMENTS vs AREA PROVIDED

Unit	FHA Requirements (Minimum)	Area Provided
Living room-dining room (sq ft)	160	237
Kitchen (sq ft)	60	109
Bedroom No. 1 (sq ft)	100	134
Bedroom No. 2 (sq ft)	70	102
Bathroom (sq ft)	33	37
Closets (sq ft)	20	38
Entrance hall (sq ft)	None	55
General storage (cu ft)	250	5,097
Kitchen shelves (lin ft)	24	28
Covered shelves (lin ft)	12	28
Base cabinets (lin ft)	Adequate	10
Work surface (lin ft)	Adequate	26

At the outset, it was recognized that conventional planning methods wouldn't apply to either town. There were too many factors—both physical and sociological—not ordinarily found in housing developments.

Basically, an adequate and stable labor market was deemed one of the most important economic factors in taconite mining and processing. The complex processes of mining taconite of 20 to 30% iron content and converting it into pellets of 60 to 65% iron content for shipment to the steel mills require much special machinery and highly mechanized operations. This, in turn, calls for skilled industrial workers, highly trained engineers, and top-flight supervision.

• **Designed to attract workmen**—Since both Babbitt and Lakeside are located in sparsely settled areas—with population densities of 0.7 and 1.1 persons per sq mi, respectively—obviously a sizable number of engineers, skilled operators and other key men must be trained or enticed into that part of the country.

Moreover, sociological surveys of the iron range country showed that adequate, economical and comfortable housing was the most important factor in attracting the quantity and quality of labor needed.

Of the two towns, Babbitt has the worse climatic conditions. Minimum winter temperatures over a period of years average −33 deg. F. Winds are often extremely strong and cold in winter, while rainfall is frequent and often heavy in summer. Winter sets in as early as the end of September and sometimes lasts until the end of April.

• Little in common—About the only things Babbitt and Lakeside will have in common is that they will house about the same number of people and contain the same basic types of houses. Otherwise they differ considerably in climate, geology and topography.

Babbitt is located on what was once a prized potato farm—a fertile and flat area. Lakeside is being built on the side of a bluff overlooking Lake Superior.

Due to these widespread differences, each townsite was analyzed separately. And these analyses were complete, including: a town plan, housing, transportation, recreation, service facilities, hospital, schools, churches, recreation, utilities, and town management.

• Street patterns—Babbitt's system of residential streets is laid out in the form of loops connecting directly with wide collector streets, which lead to the central shopping area, and to four short access roads to State Route 70 running along the north side of the town.

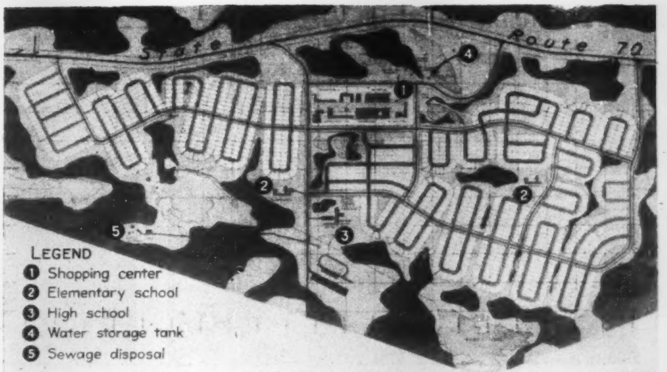
The objective of the basic street pattern is to keep fast and heavy traffic off residential streets, yet furnish the most direct route from each home to the shopping center, to State Route 70, or to the taconite mine and the small commercial taconite plant south of the town.

In general, adjacent loop units—containing from 24 to 40 houses each —will be separated by a strip of land, planted with windbreaks to give some measure of privacy to each loop.

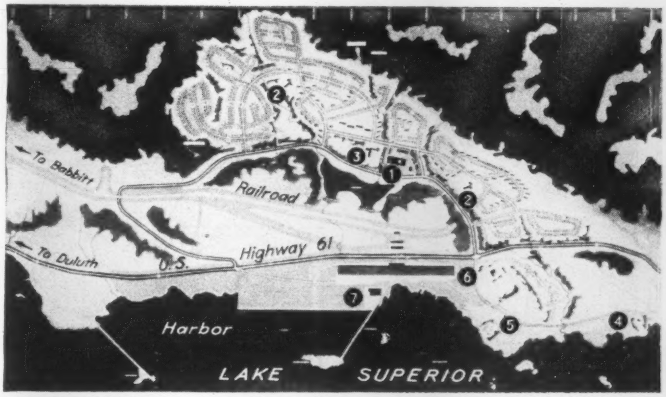
Footpaths in these areas will permit children and shoppers to travel extensively without using the residential or collector streets. In fact, school children won't cross more than one collector street to reach school.

At Lakeside, the hilly terrain was not suitable for a loop pattern of streets. Instead, all streets must of necessity follow contours to avoid excessive grades. The townsite area—which is 17,000 ft long and 2,500 to 6,000 ft wide—ranges in elevation from 600 to 1,200 ft above Lake Superior.

By laying out Lakeside's street pattern to follow the contours instead of bucking them, however, comparative studies show that its street system will be more economical to build than the loop system at Babbitt. With only a few exceptions—and those merely for short distances—street grades at Lakeside are held to a minimum of 6%.



LAKESIDE PROJECT STREETS must follow contours of the hilly topography to avoid excessive grades, but houses are oriented for maximum sunshine, and most of them will have a view of the lake.



SNOW DISPOSAL—made possible by wide streets and sodded ditches—is problem at Babbitt. Number key identifies the following structures: (1) Shopping center; (2) elementary school; (3) high school; (4) filtration plant; (5) sewage treatment plant; (6) taconite processing plant; (7) power plant.

• Babbitt housing—Field research by Pace Associates showed that a large part of Babbitt's initial population will be young families, needing single housing. Multiple row houses for families may be included later, and apartment houses for single persons.

In planning the houses, the number of rooms to be provided was governed chiefly by family size and income. Research and analysis showed that 66% of the families would need three bedrooms; 22% would need two bedrooms; 10% would need four bedrooms, while less than 2% would need only a single bedroom house. Few unmarried persons are expected to be attracted to Babbitt during its early development.

• Bigger than FHA houses—Minimum floor areas and storage space recommended by the FHA were deemed inadequate, and increases were made as shown in the accompanying table. The living room, especially, was required to be larger since it will be used more by all members of the family, because of the severe climate.

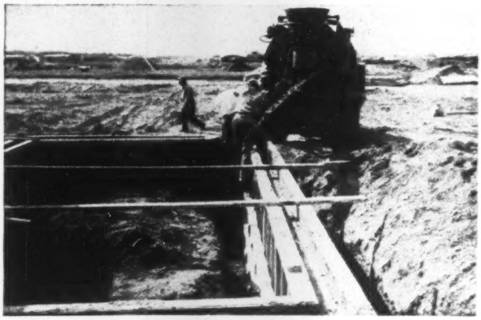
Separate dining rooms are not needed, but dining space is provided in or near the kitchen. Bathtubs—without showers—are located away from windows.

Only one entrance door is provided in some of the houses. The reason: Snow shoveling is such a difficult task in that part of the country that normally only one path will be cleared. Incidentally, the entrance is located nearest the driveway to the attached garage, and it gives direct access to the basement stairs.

Basements are large, dry and well

Modern mining town construction involves . . .

BIG EQUIPMENT GRADING for roads and streets . . .



TRANSIT MIXED concrete for house foundations, and . . .

LARGE-SCALE SODDING in which 12-in. wide strips are cut from the native prairie, put in 50-lb rolls to be loaded on trucks with a belt conveyor and relaid in front and back yards.

ventilated to provide ample play space for children in the winter, the drying of laundry, and for workers to clean up when returning from work.

On account of the short period of sunshine, all housing plans provide southern exposures for the principal rooms. Garages were considered a must for all homes since car ownership among Iron Range families approaches 100%.

• Five types of houses—Babbitt will have five basic types of houses either 1-, 1½-, or 2-stories in height. Two types have two bedrooms each, and three have three bedrooms each. One of these has a living room 30 ft 8 in. long, which could be subdivided at one end to make a fourth bedroom.

Large picture windows are provided in addition to operating windows, and closet space is unusually generous. Total floor area provided in the five types of houses ranges from 31% to 102% in excess of FHA minimum requirements for Minnesota.

• Well insulated—The houses are timber frame construction with cedar, redwood or pine siding and interior walls of gypsum board. Both interiors and exteriors are painted with a wide variety of colors in combination. They are well insulated. Exterior walls have a "U" factor of 0.125, and ceilings, a factor of 0.10. Foundations are transit-mix concrete and roofs are standing-seam metal deck.

All first floors in the 80 houses built last year were the "Cofar" type of construction, consisting of reinforced corrugated sheet steel with a 4-in. maximum concrete fill. Advantages of this type of construction, according to the designers, are:

It produces a floor that will stay level; the wood superstructure will not shrink unequally; the over-all height of the building is less than if conventional timber floor framing were used; and the construction is non-combustible. (Most small house fires start in the basement.)

Floors in the 45 houses being built this season, however, are standard timber framing, chiefly because of the uncertainty of obtaining corrugated metal on account of the steel strike.

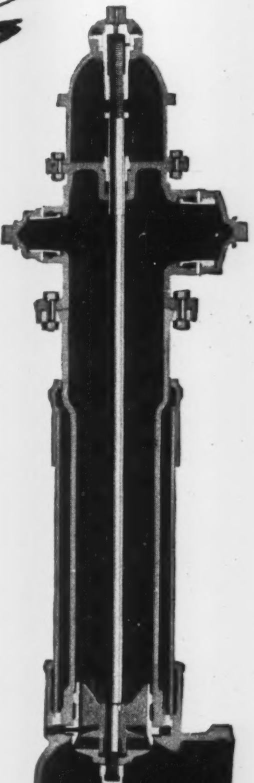
• Site fabrication—Wall sections of the houses arrive prefabricated. The remainder of the houses are either site-fabricated or erected on the job. Garage walls are site-fabricated, with the exception of the siding, and they are erected manually. Building materials are shipped in by rail to a siding two miles from the town.

At Babbitt, 80 garages were erected in 9 days this season, exclusive of pouring the concrete foundation walls. J. D. Harrold, Duluth, is the prime contractor for all construction of both townsites for the 1951-52 program. Ole Saari is construction superintendent at Babbitt, with a total crew of 200, including various building trade subcontractors.

• Rough going last year—Some families moved into Babbitt as soon as the

Quick as changing a wheel

When a Mathews Hydrant is broken in a traffic accident, two men can put in a new barrel in a matter of minutes—*without excavating*. Speed of replacement is important when community safety is at stake.



MATHEWS

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DRIVING RIVET GUNS on an OVERPASS

HERE YOU SEE a model 105 Schramm portable engine driven air compressor furnishing air to drive rivet guns on an overpass on the famous Gulf Freeway extending from downtown Houston to Galveston, Texas. Contractor on the job: Haynes Erection Company, Houston.

Schramm portable air compressors range in sizes to fit your particular air needs, and offer fuel savings up to 50% . . . simplified design . . . safety features . . . and many "extras."

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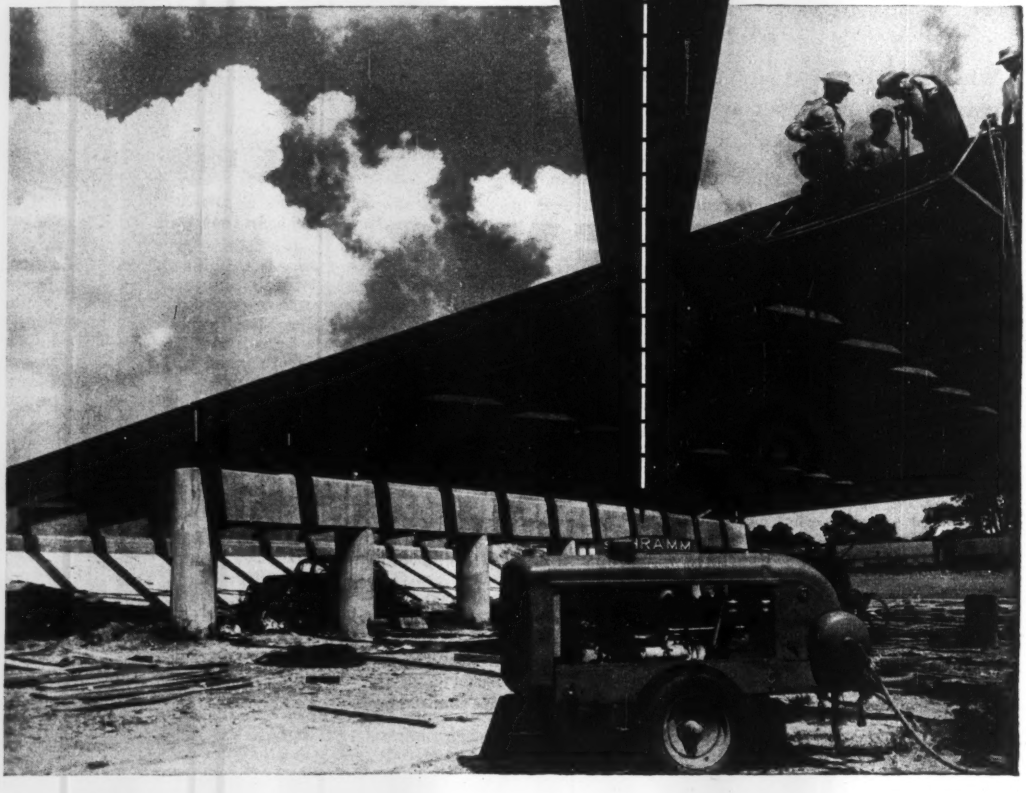


first houses were finished last year. They had a rough time of it—no sidewalks, dirt streets, and newly graded yards. When it rained—as it did frequently—they mired down in the mud. During dry weather the dust problem was terrific.

This year, living conditions have improved considerably for the 42 families now occupying houses, and for others moving in.

In the occupied areas, 75,000 sq ft of concrete sidewalks will be finished this year; yards, ditches and parkways along the streets are being sodded; and streets will be paved with asphalt soon.

Rentals at Babbitt range from $35 to $62.50 per month. This doesn't include electricity or heating. Houses have forced-draft hot air, from oil-burning furnaces. The company does not furnish electric stoves or electric refrigerators, but the kitchens are designed for them.

• **Assembly-line sodding**—The job of laying some 80 acres of sod at Babbitt called for assembly-line methods. Fortunately, relatively good sod is obtainable on Reserve property nearby. It contains brome and fescue grass, with some red top clover and a little timothy.

A sodding crew of 37 lays from 5,000 to 6,000 sq yd per day. The sod is cut in 12-in. widths by a gasoline-powered sod-cutter. It is rolled up into 50-lb rolls, loaded onto flatbed trucks by tractor-drawn elevating loaders, and relaid by hand. Fertilizer and additional seeding are added to the newly laid sod.

• **Lakeside housing**—In general, the single-family houses at the Lakeside project, on which construction was started this season, will be much the same as at Babbitt. One basic difference, however, is that the employees at Lakeside will be industrial workers, to any of whom apartments will be acceptable.

Consequently it is possible to increase the residential density by building radiant-heated row houses and apartments. Also there will be several garage compounds, which will effect economies in lot grading and eliminate grading between house and garage on steep grades.

The severe climatic conditions at Lakeside—although moderated somewhat by Lake Superior—also call for additional play space for children, laundry and drying space, and extra storage. Where the presence of rock prohibits the economical construction of basements, this extra space will be provided in utility rooms.

Lakeside houses will be located to fit the contours of the site. They will be oriented to get the maximum amount of sunshine, and most of them will have a view of Lake Superior.

• **Town centers**—In the development of the town centers—30 acres at Babbitt and slightly less at Lakeside unfavorable climate also had an effect. Buildings will be grouped to give the shortest uncovered distance between them, while parking will be arranged to give the shortest possible walk.

Both shopping centers will be developed in stages, correlated with community growth. Babbitt's center will serve only its own community, but Lakeside's will be the largest shopping area on the north shore of Lake Superior except Duluth.

The first of three schools will be started this fall at Babbitt. It will be closed in before winter sets in, and completed in time to start the 1953 fall term. Temporary schools at both towns are in session now.

• **Water systems**—Both the supply source and topography affected the choice of water systems for the two towns. Both systems are designed for a per capita consumption of 100 gpd.

Babbitt will get its water from a 42-in. diam gravel-packed deep well already completed and tested for a pumpage of 730 gpm at a 17-ft drawdown for a 36-hr duration.

A 150,000-gal overhead storage tank—also completed—will maintain a faucet pressure of 35 psi. It will also furnish enough water for fighting a fire of 5-hr duration, at maximum flow.

Lakeside's water—both domestic and for use in the huge taconite processing plant being built there—will be taken from Lake Superior. A submerged intake will be built out into the lake, with its deep end in 50 ft of water. Three 625-gpm low-lift pumps will lift the water to a filtration plant of 1.8 mgd rated capacity.

Initially the system will have one 150,000-gal storage tank and ultimately an additional 250,000-gal tank; with a two-stage pressure system due to the severe drop in elevation throughout the townsite area.

Pressures will range from 35 to 90 psi, under static head. The high-pressure pumps in the filtration plant will have a total capacity of 17,500 gpm. Three at 375-gpm will pump domestic water, and two 500-gpm pumps will furnish water for fire protection.

• **Sewerage**—The sewerage systems of both towns are designed for 1,500 dwelling units with 4.35 persons per unit, plus commercial requirements. Both systems are designed for stage development.

Initially the plants will provide partial treatment. Ultimately, they will give complete treatment, using trickling, high-rate filters with recirculated flow. In addition each plant will have a primary and secondary clarifier, sludge digestion compartment, station pumphouse and sludge beds.

• **Architects and engineers**—Supervisory personnel of the Pace Associates' Chicago office in charge of planning, designing and constructing both townsites include: C. B. Genther, executive architect-engineer; K. D. Farwell, field project engineer; Albert Goers, chief site planner; and John Cordwell, site planner. At the townsites are Robert DeWeese, architect's superintendent and Charles Wetta, field engineer. Oglebay, Norton and Co., Cleveland, Ohio, are agents for the Reserve Mining Co. in their taconite development. F. J. Smith is project manager.

Greenbelt town is sold

The government has at last sold the first depression-built federal housing projects.

Greenbelt, Md., now a suburb of Washington, D. C., finally was sold (Sept. 26) by the Public Housing Adminstration to the Greenbelt Veterans' Housing Corp., a cooperative of tenants and veterans organized for the purpose. Government got $6.3 million for a project that cost $13.4 million.

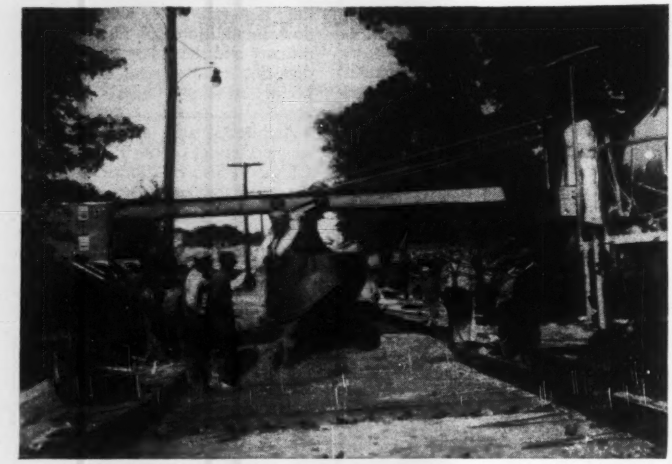
Greenbelt was the first of three "green towns" built to provide jobs during the depression and to "serve as models of modern town planning." After Greenbelt, Md., the Resettlement Administration of the Department of Agriculture—later the Farm Security Administration—built Greendale, near Milwaukee, and Greenhills, near Cincinnati.

Since 1942, the Greenbelt towns have been operated directly by the PHA. The only additions to the towns, since 1937, were 1,000 houses built at Greenbelt, Md., in 1941 under the war-housing program.

In the three original towns, 2,203 dwelling units were provided, principally row-type houses and apartments. Total government investment was about $40.8 million. This included the municipal, commercial and recreation buildings, and roads, schools, parks and utilities.

Tentative plans envisaged a total of 13,510 dwelling units, almost four times the number finally built. Provision of facilities for dwelling units not yet constructed raised the total facilities cost per unit in the projects.

Also a factor in the $40-million figure was the large amount of PWA labor used in the construction of the project.



FLY-ASH CONCRETE was laid on a test strip 400 ft long in Baltimore, Md.

Highway department tests fly-ash in pavement mixes

W. L. Chilcote
Deputy Highways Engineer
City of Baltimore

HAS FLY-ASH POSSIBILITIES for use in highway construction, as a replacement for part of the cement used in portland-cement concrete, or as a filler for bituminous concrete mixes?

These questions are raised by the successful use of fly-ash as a means of cutting cost of large concrete dams (ENR April 5, 1951, p 37) and by the fact that large quantities of rock dust now are used in the manufacture of bituminous concrete.

Fly-ash is a waste product of steam power stations, collected by the operators in large quantities and at considerable expense, to keep it from being blown over the countryside from stacks of their plants. Since the greatest quantities are collected in the densely populated areas, where the need for highways is greatest, finding a market for fly-ash in highway construction would eliminate the transportation problem that has limited its use in large dams, most of which are situated far from large centers of population.

Some research has been done to determine the possibilities of fly-ash as a substitute for part of the portland cement used in concrete pavements, but the only actual field test—as far as the author knows—is 400 square yards of pavement laid at Cooks' Lane and Alson Drive in Baltimore, Md., in October, 1950.

• Fly-ash for concrete—Chemical composition of fly-ash varies slightly with the parent material burned and conditions under which it is burned. However, carbon content will vary widely, depending on the type of combustible material used and the efficiency of the furnace equipment. It is generally agreed and accepted that carbon content of fly-ash should be quite low if it is to be used as an admixture with portland cement, and in no case should the carbon content exceed 12%.

Fly-ash is produced at an extremely high temperature, usually 3,000 F. This heat factor, coupled with the chemical composition of the material, causes it to possess certain pozzolanic characteristics. When mixed with lime, it will combine slowly with the lime to form a material similar to natural cement. Likewise, when mixed with portland cement, fly-ash will combine with the free lime released as the portland cement hardens. Consequently a greater strength concrete is produced after it ages 100 to 110 days.

By preventing the release of free lime, effervescence on the surface of the concrete is reduced materially. Also, fines of the fly-ash fill practically all the voids in the sand; therefore a dense mixture or mass is produced with low permeability, good workability, and with a general reduction in the water-cement ratio. There is a low heat of hydration when fly-ash is used in concrete mixtures, which is an important factor in mass concrete operations.

Fly-ash, it should be noted, would appear to counteract efforts to produce an air-entrained concrete that will be more resistant than plain concrete to freezing and thawing and more resistant to the damaging effect of common salt and chloride mixtures used to reduce ice and snow. Addition of fly-ash tends to produce a dense mix of low permeability. Therefore addition of fly-ash to concrete can be expected to reduce the amount of entrained air in a finished pavement.

Whether or not fly-ash concrete will resist these damaging elements to the same or a larger degree is yet to be determined. The test pavement in Baltimore is designed to give at least a partial answer. It may be found to have greater resistance than is anticipated.

• Baltimore test pavement—During October, 1950, a test section of portland-cement concrete highway pavement was placed in Baltimore using fly-ash in the mix. And right alongside was placed a section of plain air-entrained concrete for comparison purposes. A 6½-bag cement factor was used in the plain concrete, and for the fly-ash concrete the cement content was reduced by about one bag—a like amount of fly-ash being substituted in its place.

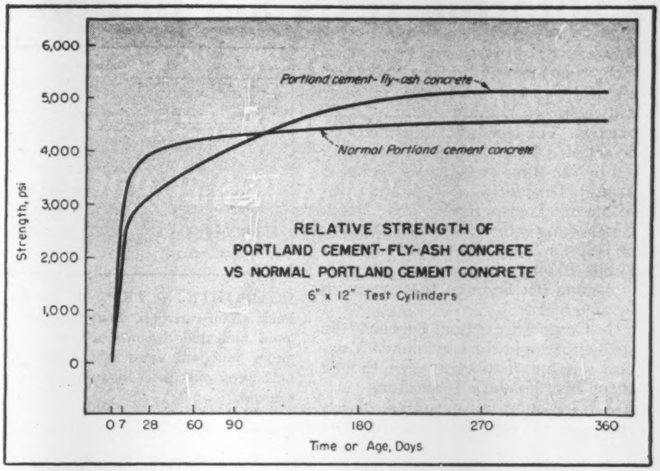
The specific amount of air entrained in the freshly mixed plain concrete was from 3% to 6% by volume, and the average air entrained in the mix was indicated by test to be 3½%. For the fly-ash mix average air entrained was only 2½%, and the fixed air content was quite variable. Also, a longer mixing period was required for the fly-ash concrete.

Test cylinders were made and broken after 7, 28, 60, 90, 180, 270 and 360 days. Plotted results from these tests indicate that the plain concrete had a higher initial strength; the plain and fly-ash concrete had about the same strength at a point some place between 100 and 110 days. After that time the fly-ash concrete had greater average strength—about 600 psi above the plain air entrained concrete. This information indicates that fly-ash concrete can be used to a decided advantage in some cases, depending on the use to which it will be put.

The Bureau of Water Supply of Baltimore has specified the use of fly-ash in the construction of the new Liberty Dam. Not only will a greater strength be realized with less cement, but many of the other desirable factors will be realized—lower heat of hydration, low water-cement ratio, and considerable reduction in possible effervescence on the concrete surfaces.

On the other hand, for highway pavement it is generally accepted at this time that we would do better to sacrifice some of the density and strength for the greater durability and resistance to weathering accomplished through air entrainment.

All in all, it appears that use of fly-ash in a portland-cement concrete mix is good, provided it produces the desirable result for the particular project. Also, because of the price differential between a bag of portland cement and a bag of fly-ash, a considerable saving can be realized on a large project.



STRENGTH CURVES show mix with fly-ash surpassing normal mix after 100 days.

• Fly-ash in bituminous concrete—All satisfactory bituminous paving mixtures are hot plant mixed. It is very difficult to control the fly-ash as a source of fines during the hot, dry mixing period, because once heat is introduced, the fly-ash has a tendency to go right on up the stack. A very undesirable dust nuisance is created, and the bituminous paving mixture loses quality as a result of the loss of this dust.

It appears more reasonable to use a stone dust or other fine material that will "stick with" the aggregates, after heat is induced. Fly-ash, it is concluded, is not readily adaptable to hot plant mixed bituminous road surfacing materials.

How to apply color to bituminous surfaces

It is sometimes desirable to apply a colored coating to materials such as asphalt, bitumen roofing felts, bitumen paints and tar paints, either for decoration or to reduce absorption of solar heat. If subsequent trouble is to be avoided, the coating must be chosen carefully; unsuitable treatments may fail in themselves and also may damage the bituminous material.

The main type of failure is cracking. This occurs because bituminous material is too soft to restrain the drying shrinkage of an applied paint film and is thus rendered ineffective as a waterproofing membrane.

Crazing of the applied coating also occurs because the bituminous material is too soft to restrain the drying shrinkage of the film. But in this case only the paint film is affected.

If the bituminous material is softened by the oil in paint, the bitumen will penetrate and discolor the film. This bleeding will not occur with certain paints thinned with water. A final possibility is that some paints will not bond to bituminous surfaces and the film will flake off after a short time.

• Satisfactory coatings — The treatments described below, however, are satisfactory, but should not be used indiscriminately, says the British Building Research Station. The first three, from long experience, are particularly useful on asphalt and bitumen felt roofs. The last two include paint treatments primarily for use on metal, brick, stone or other materials with a bitumen or tar paint application.

Limewash is satisfactory for use on bituminous materials, largely because the film is weak. No materials that induce drying shrinkage; e.g., casein or glue, should be incorporated in the wash. The mixture should consist simply of lime with not more than 10% of tallow. The wash should be applied in a thin coat, since this is less likely to craze than a thick coat. Even if crazing does occur, it will not affect the bituminous material underneath. The durability of limewash is poor, and if used on roofs, it generally will require annual renewal.

Chippings and gravel treatments (for asphalt and bitumen felt) provide durable light-colored finishes. Thin layers of marble chippings, white spar or light-colored gravel spread over the surface of the asphalt or bitumen felt are good examples.

Sand coating may be used as an alternative to chippings or gravel for both horizontal and vertical surfaces. Clean, light-colored sand, free from fines, applied to a fresh coat of bitumen paint or emulsion spread over the existing bituminous surface, will give treatment of adequate durability, except on surfaces exposed to severe climatic action.

Colored bitumen paints are available, but care is needed in selection. Some contain drying oils and are likely to craze and cause cracking of the bituminous material to which they are applied. Others, including certain bitumen emulsion products, have been specially formulated for use on bituminous surfaces. Emulsion paints of this type proved satisfactory on asphalt and bituminous surfaces for camouflage during the war. These paints did not contain drying oils or aromatic petroleum residues. Casein glue and other proteins were limited to not more than 0.5% of the weight of the liquid paint. Aluminum paints with a bitumen base have been widely used but crazing sometimes occurs, particularly on soft surfaces; e.g., on tar paints.

Sealers, such as aluminum paints with an oleo-resinous or cellulose base, solutions of shellac and spirit paints, are sometimes used either as a finishing coat or as a means of preventing bleeding. They are of value when most of the bitumen or tar has been removed from the surface but should not be used over normal thicknesses of bitumen or tar paints because the shrinkage of the sealer is liable to cause crazing and cracking of the surface.

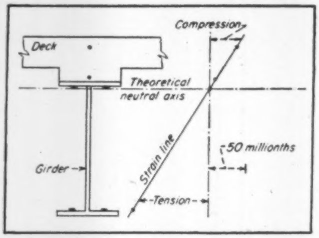
California tests aid bridge design

Results of full-scale tests on a California Freeway bridge (ENR Apr. 19, 1951, p. 66), while not startling, will help in refining bridge design practice. The conclusions reached will be released in a complete report this fall by the three cooperating agencies, namely University of California Institute of Transportation and Traffic Engineering, the California Division of Highways and the U. S. Bureau of Public Roads.

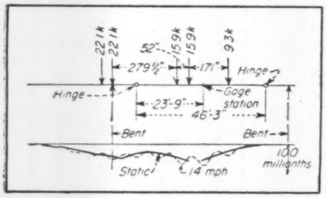
Among the findings, these seem to be significant:

1. Composite action between the steel girders and the concrete deck system was found to exist—even though there were no shear connectors.
2. Deflection as measured closely approximated that computed for composite action.
3. AASHO values for transverse load distribution are conservative for the middle girders and agree closely for the two exterior girders.
4. The effect of the diaphragms on load distribution was small.
5. Dynamic increments of strain and deflection for smoothly rolling loads range from 20 to 30% of static values.
6. The use of continuous recording equipment to measure strains and deflections was found to be very effective for static as well as dynamic measurements.

• **Effects**—These findings are significant only as they add to the knowledge of bridge behavior. No one test of this sort will be convincing enough to result in conclusions that change bridge design hypotheses. But the aggregate of this and similar tests (such as carried out by the Michigan State Highway Department, Iowa State College, and others) will lead to better and more economical bridge design.



COMPOSITE ACTION is shown by linear strain variation. Had this strain diagram indicated discontinuity at the slab-girder junction, composite action would have been only partially complete or nonexistent.



DYNAMIC LOADING IS 20 TO 30% MORE than static for smoothly rolling loads. Chart shows measured strain influence line for heavy truck at 14 mph compared with equivalent static load line. Gage was located midway between bents with strain shown for rear axle position.

The California tests were made on the San Leandro Creek Bridge of the Eastshore Freeway in Oakland. This structure, a three-girder viaduct, was completed far enough ahead of the freeway proper to permit an extensive testing program. In fact, the researchers installed hundreds of gages in the structure while it was under construction. Then, they ran heavily loaded trucks with single axle loads as high as 25 tons over the test span at regulated speeds and recorded the induced strains and deflections with oscillographic equipment.

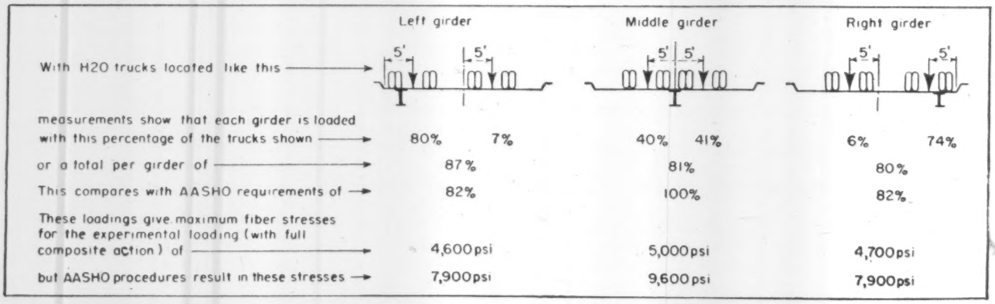
• **Purpose**—Primary purpose of the work was to investigate: composite action of the concrete slab with the steel girders, effect of the slab and diaphragms on load distribution between girders and techniques in instrumentation for field tests. Composite action was complete at all sections of positive moment but only partial over the supports (negative moment).

Load distribution results showed AASHO specifications to be conservative for the middle girder of the bridge. And the maximum girder fiber stresses—as computed taking composite action into account—are much less than those obtained by following AASHO design procedures, disregarding composite action.

Tests were also made with trucks running over obstructions. These tests indicated that the strains and deflections caused by obstructions which may commonly be encountered by vehicles using the bridge are no greater than the dynamic effects of smoothly rolling loads.

These test results will undoubtedly be given careful scrutiny by members of the AASHO bridge committee. But it's just as certain that they will want to consider findings of still other researchers before changing long established procedures.

The research project was carried out by the staff of the University of California Institute of Transportation and Traffic Engineering under the direction of Professor T. Y. Lin and Robert Horonjeff. In addition to these two, membership of an advisory committee guiding the work included: H. R. Angwin and Raymond Archibald of the Bureau of Public Roads; H. E. Davis and R. E. Moyer of the Institute; H. D. Eberhart, University of California; Stewart Mitchell and Francis Hveem (replacing T. E. Stanton who has retired) of the California Division of Highways; N. A. Raab, California Division of Bay Toll Crossings and G. B. Woodruff, San Francisco consulting engineer.



	Left girder		Middle girder		Right girder	
With H20 trucks located like this →						
measurements show that each girder is loaded with this percentage of the trucks shown →	80%	7%	40%	41%	6%	74%
or a total per girder of →	87%		81%		80%	
This compares with AASHO requirements of →	82%		100%		82%	
These loadings give maximum fiber stresses for the experimental loading (with full composite action) of →	4,600 psi		5,000 psi		4,700 psi	
but AASHO procedures result in these stresses →	7,900 psi		9,600 psi		7,900 psi	

AASHO SPECIFICATIONS are conservative for the middle of the three girders, according to load distribution tests.

McKIERNAN-TERRY PILE HAMMERS
drive 3995 piles for Long Island Bridge

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NTRACTING ENGINEERS
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McKiernan-Terry Pile Hammers driving concrete piles for new Great South Bay, Long Island, causeway and bridge.

A new causeway and bridge, connecting Captree Island and Bay Shore, is currently being built across the Great South Bay in Long Island, New York. The contractor, J. Rich Steers, Inc., selected McKiernan-Terry Pile Hammers to drive a total of 3,995 concrete and timber piles for this project.

A powerful McKiernan-Terry S-10 Single-Acting Hammer was used to drive 697 2-ft square reinforced concrete piles and 148 18-in. square reinforced concrete piles. In addition, 3150 subaqueous timber piles were punched down with a fast-driving McKiernan-Terry 10-B-3 Double-Acting Hammer.

Chances are, wherever you find heavy construction . . . in building bridges, tunnels, subways, cofferdams highways, foundations, water-front improvements and many other jobs . . . you will find McKiernan-Terry equipment at work. Hundreds of contractors rely on the power and dependability of McKiernan-Terry pile hammers and extractors. Bulletin describes complete line, which includes 16 sizes of hammers and 2 sizes of extractors. Write for your copy today.

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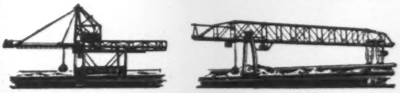

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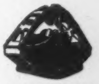

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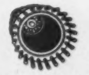

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EACH of these three Bucyrus-Erie B-Type Scraper models loads with the same "fountain" action that breaks up chunks and boils material up through to fill the bowl completely.

Each hauls easily on big tires, and has the stability that comes with low bowl height, wide spaced rear wheels and proper weight distribution.

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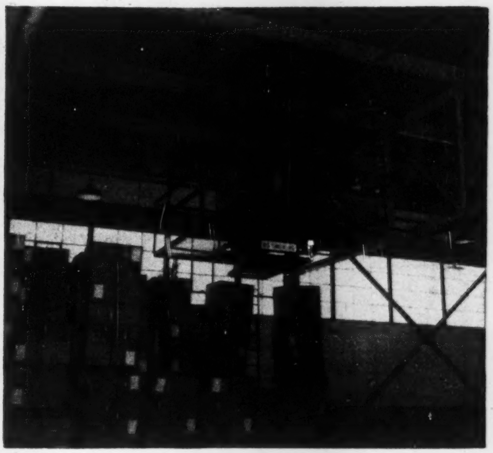
SPACE HEATERS, completely self-contained, require only short runs of ductwork and minimum of piping to heat warehouse.



CEILING-MOUNTED HEATERS are in separate shipping and receiving zones which localize frequent influxes of cold air.

Designing a well-heated warehouse

STAFF ENGINEERS for S. S. Kresge Co. determined that the firm's new warehouse in Fort Wayne, Ind., should be as comfortable a place to work in as the adjacent office building—notwithstanding the large open area and the frequent opening of doors. As such it would be a far cry from most warehouses, which suffer from inadequate heating and ventilating.

Kresge storage requirements called for 312,000 sq ft of undivided area, which took shape as a 532x587-ft steel-framed structure 15 ft 4 in. high. The next step was to minimize heat loss (and gain) through the roof and walls. A 4½-in. lightweight perlite concrete slab on top of galvanized corrugated steel sheet and covered with pitch and slag was employed as the roof. It has exceptional insulating qualities, as indicated by a U factor of 0.13, and is also fire-resistant. Walls are concrete block with brick veneer.

• Localize cold air drafts—Then the designers faced the always vexing problem of cold air influxes owing to frequent opening of the large warehouse doors. By building separate receiving and shipping wings at each end of the main area, the incoming cold air could be localized in those zones. They are 90x225 ft and 19 ft 4 in. high. Cost of the entire warehouse, with mechanicals, was $4.16 per sq ft.

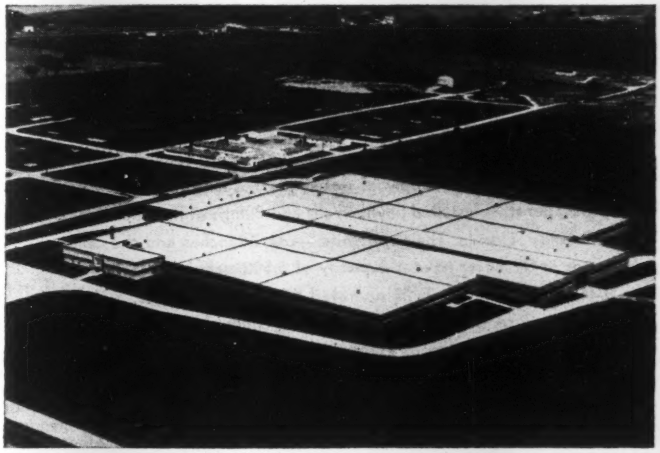
Self-contained space heaters were chosen as the heating plant so as to minimize ductwork and piping. In the warehouse proper, two floor-mounted 1,250,000-Btu per hour units are located along each of the four walls and discharge into short runs of ductwork that extend along the wall on either side of the heaters. The maximum duct run is 120 ft, minimum 48 ft. A heater of 2,000,000-Btu per hour capacity is positioned in the center of the main area.

These nine units, with a total hourly capacity of 12,000,000 Btu, are sufficient to maintain the 312,000-sq ft area at a uniform 65 F when outside temperature is as low as 0 F.

In each of the wings, two 1,000,000-Btu per hour heaters, hung from the ceiling to conserve space, are able to counter cold air drafts. They require no ductwork.

All thirteen heaters are the direct-fired type. The only piping required is that carrying oil from 40,000-gal underground storage tanks. Thus, by using self-contained space heaters, the necessity of a boiler house and full-time attendants was eliminated, and the quantities of piping, valves and fittings were considerably reduced.

General contractor for the warehouse was Hagerman Construction Corp.; heating contractor was Industrial Piping & Engineering Co.—both of Fort Wayne. The heaters were supplied by Dravo Corp., Pittsburgh. T. B. Murphey supervised for Kresge.



WINGS OF WAREHOUSE are shipping and receiving zones which localize cold air influxes. Railroad siding extends 400 ft into building down the center.

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Layne

To be sure of always having an adequate, fully dependable and surprisingly economical supply of water, the Fosgate Citrus Concentrate Co-operative installed Layne Wells and Pumps at their new plant near Orlando, Florida. Their two units:—one 24-inches and the other 14-inches in diameter have a capacity of 6,500 gallons per minute—or 9,360,000 gallons daily if operated on a 24-hour basis. Built to Layne's standard of precision engineering, these wells and pumps will give years and years of excellent service with an amazingly low maintenance cost.

The same "know-how" experience that built a fine water supply for the Fosgate people of Florida—and for several thousand other plants, cities and factories,—is ready to serve you, whether for a single small unit,—or a number of large ones.

For Layne's Catalog on Well Water Systems write—

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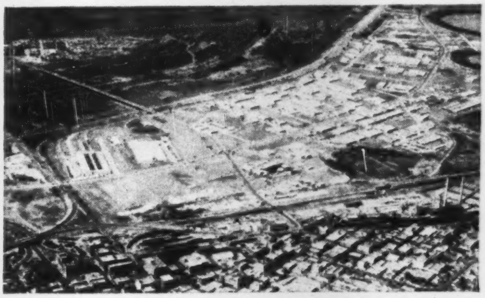
WATER WELLS
VERTICAL TURBINE PUMPS
WATER TREATMENT

1946—TID is nearly vacant as only the first of the buildings is started in the background (Continental Trailways Buses).



1952—Buildings built, 301, and by year's end, there will be 410 tracts sold, 315 buildings and $40 million valuation added.

Dallas' industrial district grows on former flood lands

This month, the expanding Dallas, Tex., branch office of Black & Decker Manufacturing Co. will move into a $50,000 building, of 4,000 sq ft, in the city's Trinity Industrial District.

The Black & Decker structure is the newest—the 301st—building to open in an industrial district that was nothing but a 1,200-acre wasteland of cockleburrs and chest-high Johnson grass six years ago.

In this period, some 500 acres—within a mile or two of Dallas' downtown district—have been developed. More than $50 million worth of buildings have been built and $3 million in streets and utilities have been installed. Dozens of big-name firms have located in the district.

"TID" firms occupy from 1,500 sq ft (Parker Pen) to 200,000 sq ft of space (International Harvester). The district is primarily for light industry or distributive operations, but there is some heavy industry.

Once started (1946) TID grew rapidly. In 1946, five tracts were sold and two buildings started with a value of $1 million. In 1952 it is expected that the total for the years '46 to '52 will be 410 tracts, 325 buildings, and $40 million.

The present $10 million-a-year pace in building is due to slacken during the next two or three years—then to be followed by another period of expansion. The reason: A drainage problem.

Drainage in the southeastern half of the district is adequate, and it is this section that has been developed. The northwestern section cannot be developed until a new drainage system is completed about 1954.

Opening of the northeast section will release 700 acres, compared with 500 acres in the section now under development.

Construction will still continue, however, at a good pace, during the next two or three years.

At the time of complete development, it is estimated that 54% of the total 1,200 acres, or 28,000,000 sq ft, will have been sold for business purposes. Figuring on an average valuation, for developed land, of $7.25 per sq ft, the district will be the site of buildings costing in excess of $200 million.

• History of TID—The existence of the TID today is due to three factors: A stubborn Texas family named Stemmons, luck, and an erratic little river called the Trinity.

When Dallas was founded in 1847 on the banks of the Trinity, settlers heard Indian stories of the big waters of 1822 and 1844. Havoc was caused by the Trinity in 1866 and 1890, but it was in 1908 that the greatest flood struck. The meandering little river boiled up to 52 ft and much of the city was inundated. Damage soared into the millions.

Clearly, if Dallas were to expand industrially, something had to be done to harness the Trinity.

It was not until 1925, after two more floods, that the city of Dallas appointed a committee to study the problem. On that committee was a man named L. A. Stemmons, who liked to call himself a "practical visionary."

The committee recommended that the course of the Trinity be straightened to run between two levees. A Levee District was formed by landowners and bonds for the development were voted in 1928 by the district, the city and the county. The bonds totaled more than $20 million and the landowners in the Levee District stood behind $6.5 million of this amount.

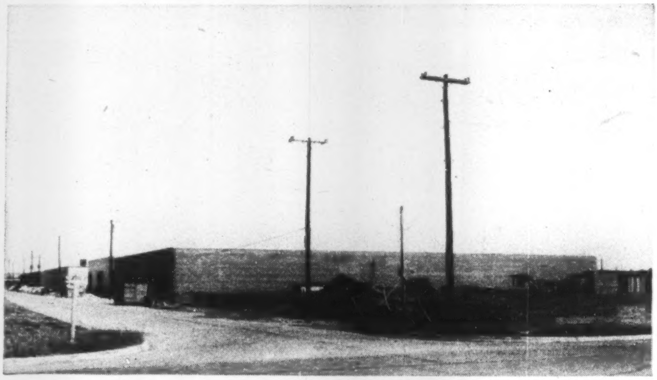
A new channel was dug for the river, levees and other flood control works were constructed and finally, in 1932, the levees were closed, thus freeing about 7,200 acres of former bottom land for development.

The protective system consists of 25 mi of levees and 15 mi of new channels. TID lies immediately to the east of the levee nearest downtown Dallas.

• Money—Landowners on the choice sections of the east bank of Trinity banded together in 1928, under the leadership of Stemmons, to form the Industrial Properties Corporation. During the boom of the "twenties", industrial districts throughout the area were studied; field parties surveyed proposed streets and easements; timber was felled and the land was grubbed; and negotiations started with railroads and utilities.

Then the depression struck. The property owners were unable to pay taxes and the bonds they had issued soon went into default. With no funds, the Levee District could not keep drainage pumps going. The city ran the pumps only when it was necessary to keep viaducts and underpasses open.

All those years, Stemmons kept plugging for his dream of a planned privately-owned industrial district on the Trinity, and he reared his two sons to follow this dream. Stemmons



DEPRESSED STREETS are 3.6 ft below natural ground level. Floor slab laid on ground level is at truck and railroad car level.

never saw the district grow into reality (He died in 1939) but his sons, John M. Stemmons and L. Storey Stemmons, are president and vice-president, respectively, of the IPC.

Finally, in 1945, the financial jungle was cleared. A Federal District Court gave the Levee District permission to refund the bonds, a plan of remitting taxes was approved and development began on an initial 25-acre tract.

Many Dallas business men believe there was an element of luck in the delay of the development of the district. They contend that the volume of money necessary to expand the district in an orderly way was not available before 1945 anyway, and that in this way, the district was not ruined by premature development.

• **Features**—Here are some of the major features of the TID:

• Streets are 70-160 ft wide and all new pavement is 9:7:9 reinforced concrete. Usually this pavement is 40 ft wide without curbing, except at the corners.

• No loading dock facing a public street may be nearer than 25 ft to the property line or a minimum of 45 ft from the pavement. This prevents parked trucks from blocking traffic.

• Many truck wells are placed inside buildings to eliminate traffic.

• It was decided to depress practically all streets and rail and utility easements so that a floor slab poured at ground level is about at truck bed and car door level. This has permitted savings in building construction costs.

• The district is divided into units 45 ft wide—wide enough for rail facilities but small enough for almost any firm. The number of units required depends on the needs of the company involved. Depths of tracts vary from 125 ft to 410 ft.

• The space at the rear of developed property is known as the utility strip. The strip is 53 ft wide, of which 43 ft are required for a main rail track and two service tracks running near buildings one on either side. The remaining 10 ft space is reserved for utilities.

• Buildings in the TID are generally one story and of masonry construction. Most offices, in some cases entire plants, are air-conditioned.

• Foundations are bored through black waxy loam and gumbo into yellow clay at minus 13 ft and the piers bell bottomed. This has proved satisfactory for the heaviest loads in the district. Eagle Ford shale could be reached 40 or 50 ft down if necessary.

• **Values**—Original sales in the district were based on a price of 50¢ per sq ft, plus $25 per lin ft if on a boulevard and $10 per lin ft if on a side street. Prices quoted by the developers have not changed materially, but resales of certain tracts have been made at prices as high as $2 per sq ft. Normal resales average $1.

Williams and Wagner Construction Co., a firm started by two G.I.'s after World War II, has built more than 100 buildings in the district, ranging in size from 2,000 sq ft to 26,000 sq ft. About half of these were started without a tenant.

Another investor, Trammell Crow, started building in 1948. To date he has completed or has under construction some 30 buildings with 600,000 sq ft. Other important builders are: Kaplan Construction Co., M. Grossman; McFadden & Miller Construction Co.; E. V. McCright & Co.;

(*Continued on page 51*)

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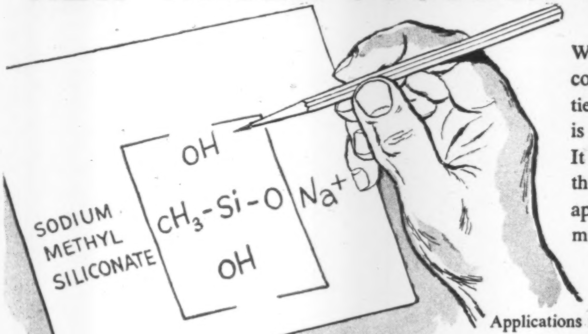

Where can *you* use a new General Electric silicone with these unusual and original properties? SC-50, a reactive chemical intermediate, is a water solution of sodium methyl siliconate. It offers new possibilities for manufacturers in the field of silicone water repellents. It may be applied from water solution; it is nonflammable; and it may be cured without heat.

POSSIBLE USES

Applications for SC-50 might include its use—

1. as the active agent in masonry water-repellent formulations. SC-50 is more effective on gypsum and limestone than previous silicone water repellents.
2. in integral mixes of cement paint, gypsum, and concrete.
3. as an additive to water-base paints to improve washability.
4. to make water-repellent aerogels.
5. as a water repellent for textile and paper products.

REACTIVITY

In addition to its water-repellent properties, SC-50 has marked possibilities as a chemical intermediate. With salts of other metals such as calcium and lead, it forms relatively insoluble, easily hydrolyzed salts, e.g., calcium methyl siliconate. Quaternary ammonium salts react similarly, giving quaternary ammonium methyl siliconates with a variety of solubility and hydrolytic characteristics. With aluminum salts it forms neutral solutions which are stable at use dilutions and which are effective water repellents. Experimentally, it has been used to make copper methyl siliconate to impart water and mildew resistance to textiles.

COMPOSITION AND PROPERTIES OF SC-50

Total solids	31.2 ±2.8%
Total base (titrated as Na_2O)	9.5 ±0.5%
Total silicone (as $CH_3SiO_{1.5}$)	20.0 ±0.5%
Specific gravity	1.23—1.25
pH	about 13
Color	Gardner 3 max.
Solubility	Miscible in all proportions with water, methanol, ethanol, aqueous formaldehyde. Slightly miscible with n-propanol, i-propanol, acetone, dioxane, higher alcohols, ketones and ethers.
Solvent	Water

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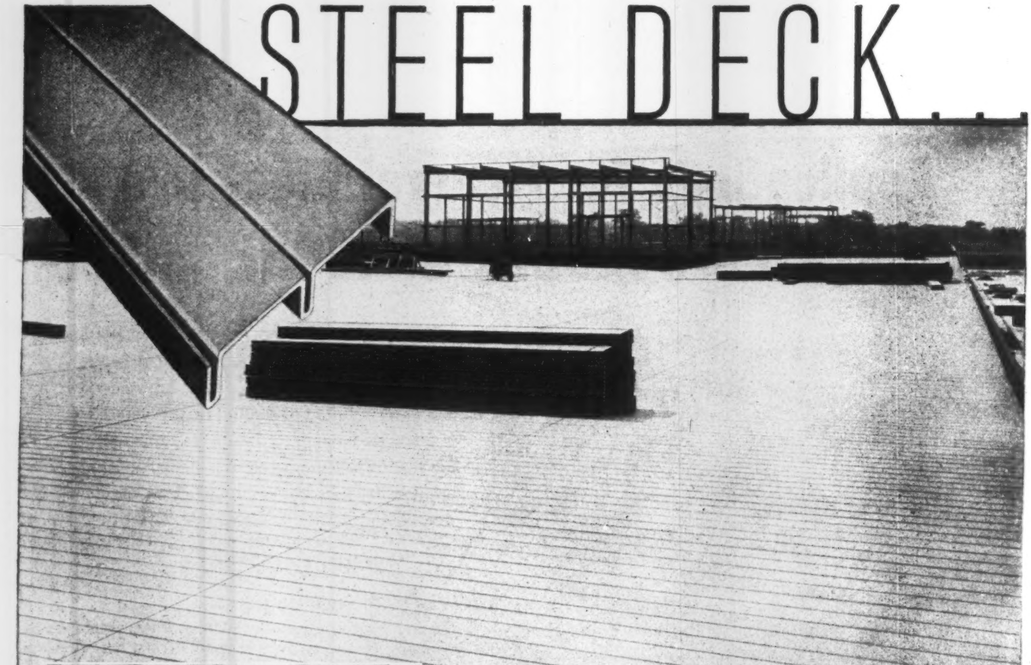

BUILT-UP SADDLES ELIMINATED

Built-up saddles are eliminated in Steel Deck Roofs. Purlins can be set to create valleys at sump locations in the drainage area. Steel Deck can be warped to conform. No additional deck plates are required—no cutting, fitting or bending necessary.

37 Acres of Mahon Steel Deck on Another New Industrial Plant!

A Steel Deck Roof costs less per square foot than any other type of permanent, firesafe construction with comparable "U" Factor. This statement is substantiated by the following facts: Steel Deck can be insulated to the exact degree to provide the thermal properties required in any given locality. Steel Deck's light weight permits savings in the supporting structure—total dead load, including insulation and waterproofing material, is less than any other type of permanent roof construction. Mahon Steel Deck is available in Galvanized or Enamel Coated Steel. Stiffening ribs are vertical—no angular or horizontal surfaces where troublesome dust may accumulate. In the enameling process, the metal is chemically cleaned, phosphated, and treated with a chromic acid solution to provide paint bond, and the protective coating of synthetic enamel is baked on at 350° F. prior to roll-forming. These are features worthy of consideration. See Mahon's Insert in Sweet's Files for complete information, or write for Catalogs B-53-A and B.

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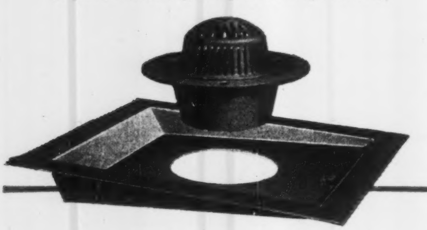
Manufacturers of Steel Deck for Roofs, Partitions, Ceilings and Concrete Floor Forms; Insulated Metal Walls of Aluminum, Stainless or Galvanized Steel; Insulated Metal Wall Panels; Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.



SUMP RECESSES and SUMPS

Mahon Roof Sump Recesses for use with Mahon Steel Deck can be furnished to fit any roof pitch. Mahon Cast Iron Sumps can also be furnished for 4", 5", and 6" conductors.

MAHON

Bonnie View Building Corporation and Horne & Turner.

• **Structures**—Largest building in the district is owned by International Harvester Co.; the building covers 200,000 sq ft on a site of 410,000 sq ft. The plant handles parts for 600 dealers in the Southwest and Mexico.

The Texas and Pacific Railway Freight Terminal is another important group of structures. The total installation covers 1,300,000 sq ft of area.

Other significantly large buildings are: The 75,000-sq ft headquarters of Continental Trailways, complete with a bus repair and service section and office space; the 137,000-sq ft B. F. Goodrich Co. plant, built for Goodrich and leased to the company by Trammell Crow; the 123,500-sq ft Ford Motor Co. parts depot and the U.S. Post Office parcel post depot and garage which covers 110,000 sq ft of floor space and is surrounded by 100,000 sq ft of concrete paving. The nearness of the parcel post depot is a powerful selling point for TID backers and investors.

• **Traffic and highways**—One of the big problems of TID, as L. A. Stemmons warned years ago, is that of traffic.

There is little congestion in the side streets of the district, because only 4,000 persons are employed in the district. Many TID plants require rather small working forces for their operations.

The major arteries are a problem. Thoroughfares are overloaded. Plans call for another two north-south thoroughfares (possibly three) and another east-west thoroughfare (possibly two).

• **Drainage**—Most important to TID is the Turtle Creek storm sewer which is being designed as a 16 ft horseshoe section to take the run-off now making the northwest section of the industrial district unusable. It draws from a $5,500-acre drainage area. The sewer is designed for a capacity of about 1,800,000 gpm with the river at bank-full stage. A spillway will be provided to discharge flows in excess of 1,800,000 gpm. The outlet structure will consist of a transition section and gates to permit dewatering the sewer for inspection and repair when necessary.

When this sewer is completed TID probably will continue the fast growth of the last six years.

(*"Municipal"* continued on page 53)

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S
All Toll Roads Lead To Taller & Cooper

THE MOST WIDELY USED TOLL BOOTH IN AMERICA!

For flexibility . . . for durability . . . for economy of erection and maintenance . . . highway engineers and authorities across the nation prefer Taller & Cooper shop-assembled ALL-STEEL TOLL BOOTHS and canopies.

Pre-built from your design or ours, they are engineered to speed collections and protect tolls, and are erected quickly with a minimum of interference to traffic or road-building activity. In service, they provide maximum comfort and safety for personnel.

All Taller & Cooper Toll Booths are heavily reinforced and permanently waterproofed. They are completely equipped with electrical and heating units, controls, racks, drawers, cabinets and furniture.

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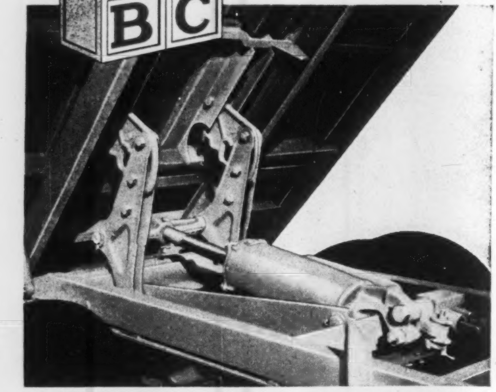
It's Right ON THE JOB!



Ask an operator of Galion equipped dump trucks what he thinks of Galion hydraulic hoists and allsteel dump bodies. Chances are he will say: "They're *right* on the *job!*"

And that's as good a recommendation as any . . . and it's language anyone can understand.

But why not check up on Galion equipment when next in the market . . . get the low-down on Galion's famous ABC combination . . . where an exclusive Fulcrumatic lift ACTION unites with perfect operating BALANCE and quality CONSTRUCTION to provide top performance for a long, long time.

There's a Galion distributor right near by, ask him to demonstrate equipment that will be Right on Your Job! No obligation.

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A exclusive hoist *Action*

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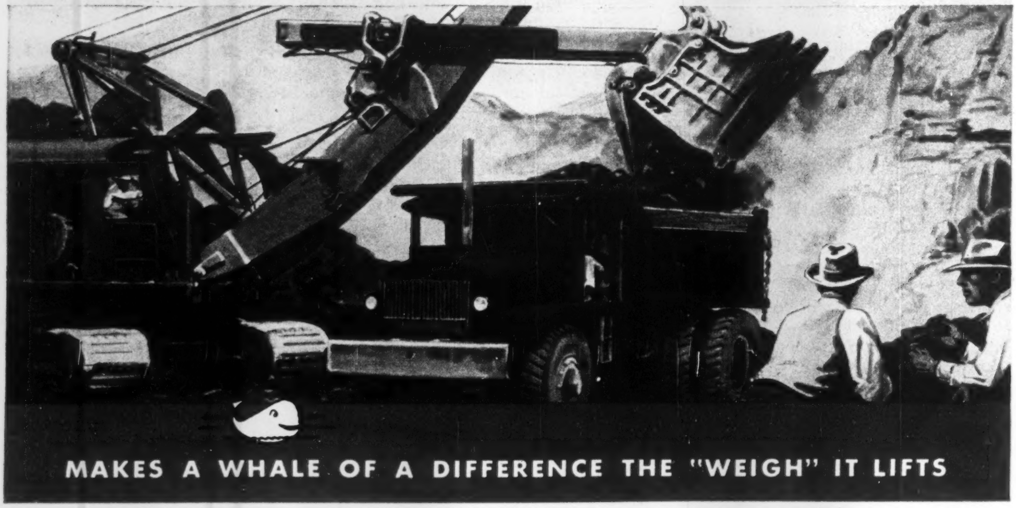
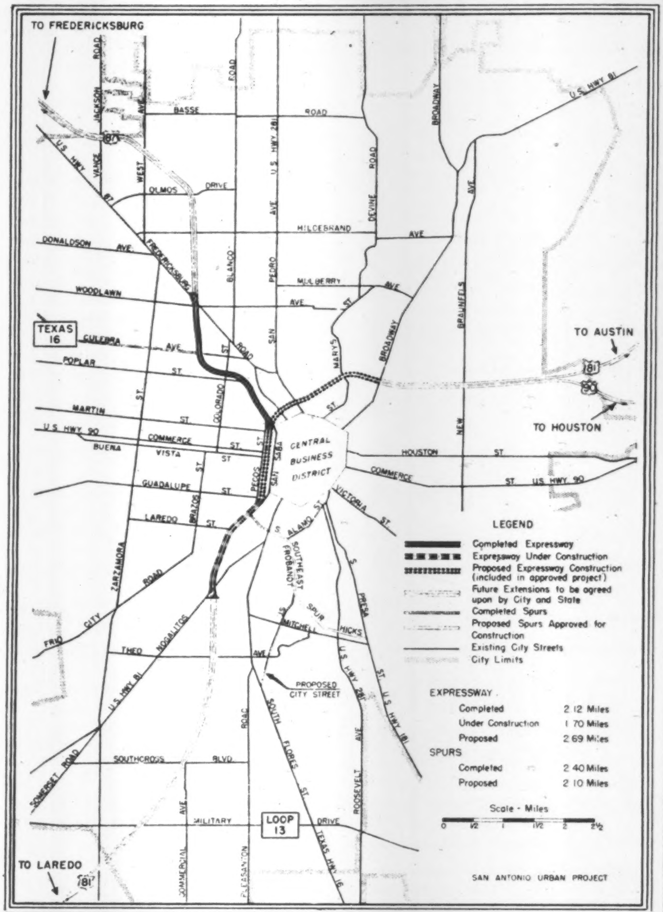


MAKES A WHALE OF A DIFFERENCE THE "WEIGH" IT LIFTS


TO FREDERICKSBURG
TO AUSTIN
TO HOUSTON
TO LAREDO
CENTRAL BUSINESS DISTRICT
TEXAS 16
LOOP 13
LEGEND
Completed Expressway
Expressway Under Construction
Proposed Expressway Construction (included in approved project)
Future Extensions to be agreed upon by City and State
Completed Spurs
Proposed Spurs Approved for Construction
Existing City Streets
City Limits
EXPRESSWAY
Completed 2.12 Miles
Under Construction 1.70 Miles
Proposed 2.69 Miles
SPURS
Completed 2.40 Miles
Proposed 2.10 Miles
Scale - Miles
0 1/2 1 1 1/2 2 2 1/2
PROPOSED CITY STREET
SAN ANTONIO URBAN PROJECT

SOUTH LEG of San Antonio expressway which is soon to be opened is shown on this map as "expressway under construction" between Nogalitos and Guadalupe streets.

San Antonio expressway progresses

Another segment of San Antonio's Urban Expressway opened Oct. 15, one month behind schedule because of the steel strike. R. A. Bossy, expressway engineer, explained that structural steel for one bridge was unavailable, setting back opening of the 1.5-mi south leg about 30 days.

The steel arrived and the finishing touches were put to the south leg, which cost approximately $3.6 million to construct.

The portion opened is the south leg of the U. S. Hwy. 81 expressway. Already in operation is the northern part of the U. S. Hwy. 87 expressway, a segment of about 2½ mi.

Work is under way also on the north leg of the Hwy 81 expressway. This is one of the last portions of the original expressway project, and will make a "Y" with the other two segments, mentioned above, in the approximate center of the city. Following completion of the north leg, there still remains an elevated stretch in the very center of the "Y" to be constructed.

• **Nearing completion** – Started in 1947, the original "Y"-shaped project is scheduled to be completed in 1955.

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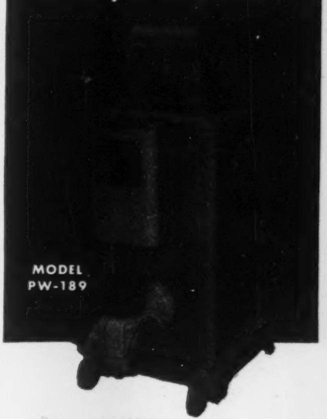
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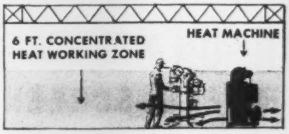
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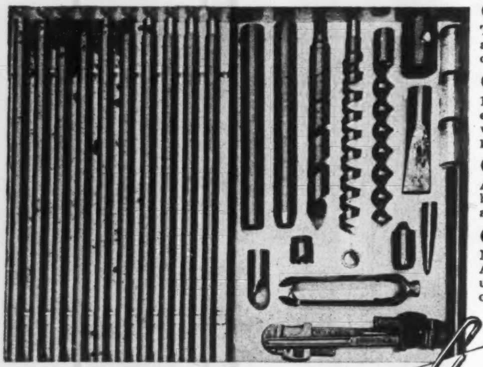

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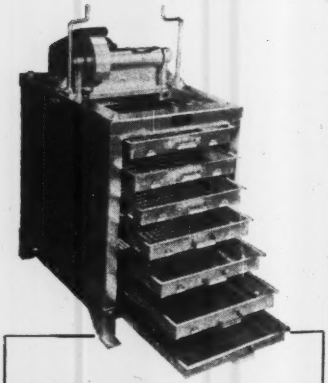

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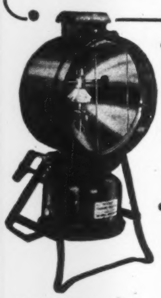

This Model F. L. 6 Floodlight is shown complete with short stand—Weighs 27 lbs. Overall height 26 inches. Also available on 5 to 8 ft. tripod with turntable top—$85.
$65.00 F. O. B. CHICAGO

● A self-contained unit with no cables—entirely independent of batteries, generators, and the like, which makes it more mobile. Wind and rain proof.
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Total cost of construction up to that point: $16 million.

After that, the State Highway Department and the federal government, with the city's approval, plan extensions of the "Y" in all directions until San Antonio has divided four-lane highways leading in and out of the city in all directions.

Only recently the highway department of the state proposed plans for an east-west expressway across the city, and they were accepted by the city. But this is a long-range project which is still in its very early stages.

The state also announced it planned to complete Loop 13, a military access highway, and make it a four-lane highway. Loop 13 at present is not actually a loop, having a missing link in the northwestern part of Bexar County.

• **Engineering**—Bossy said there have been no unusual civil engineering problems, so far. Due to the type of soil that exists in San Antonio, all bridge foundations have been made of under-reamed concrete shafts resting on shale some 25 to 30 ft below the surface.

The completed section is holding up well. It shows no cracking and litle movement of pavement, Bossy said.

All of the expressway thoroughfares will be four-lane divided highways with the exception of elevated sections between Guadalupe and Martin streets, in the center of the "Y" and bordering on the western edge of the central business district. This portion, to be made up of two separate elevated sections, will be six-lane.

Traffic volume on the portion completed has been about 23,000 cars per day, with a peak of 2,000 per hour. Bossy said 40,000 cars per day would be the "comfortable capacity".

The south leg, opened Oct. 15, runs from Guadalupe Street to Nogalitos Street. Half of it is elevated and half of it depressed.

$319-million public works recommended for capital

The Commissioners of the District of Columbia have been handed recommendations for a long-range civic improvement plan proposing a six-year, $319-million program for construction of highways, sewage disposal systems, water expansion, hospitals and other public buildings.

The report was the result of studies by the Washington Citizens' Advisory Committee on Public Works.

(*Continued on page 57*)

The direct-process prints and blueprints received from vendors are reproduced on Autopositive Paper when extra copies are needed for the drafting room or shop. Deletions and additions can be made readily on Autopositive intermediates . . . saving drafting time.

Drawing Reproduction Revolutionized

with Kodagraph Autopositive Paper

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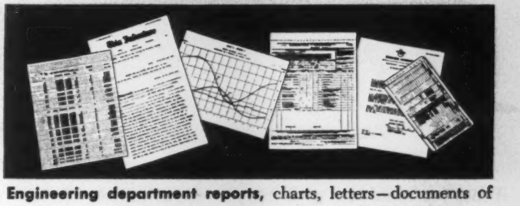

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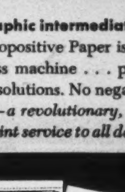

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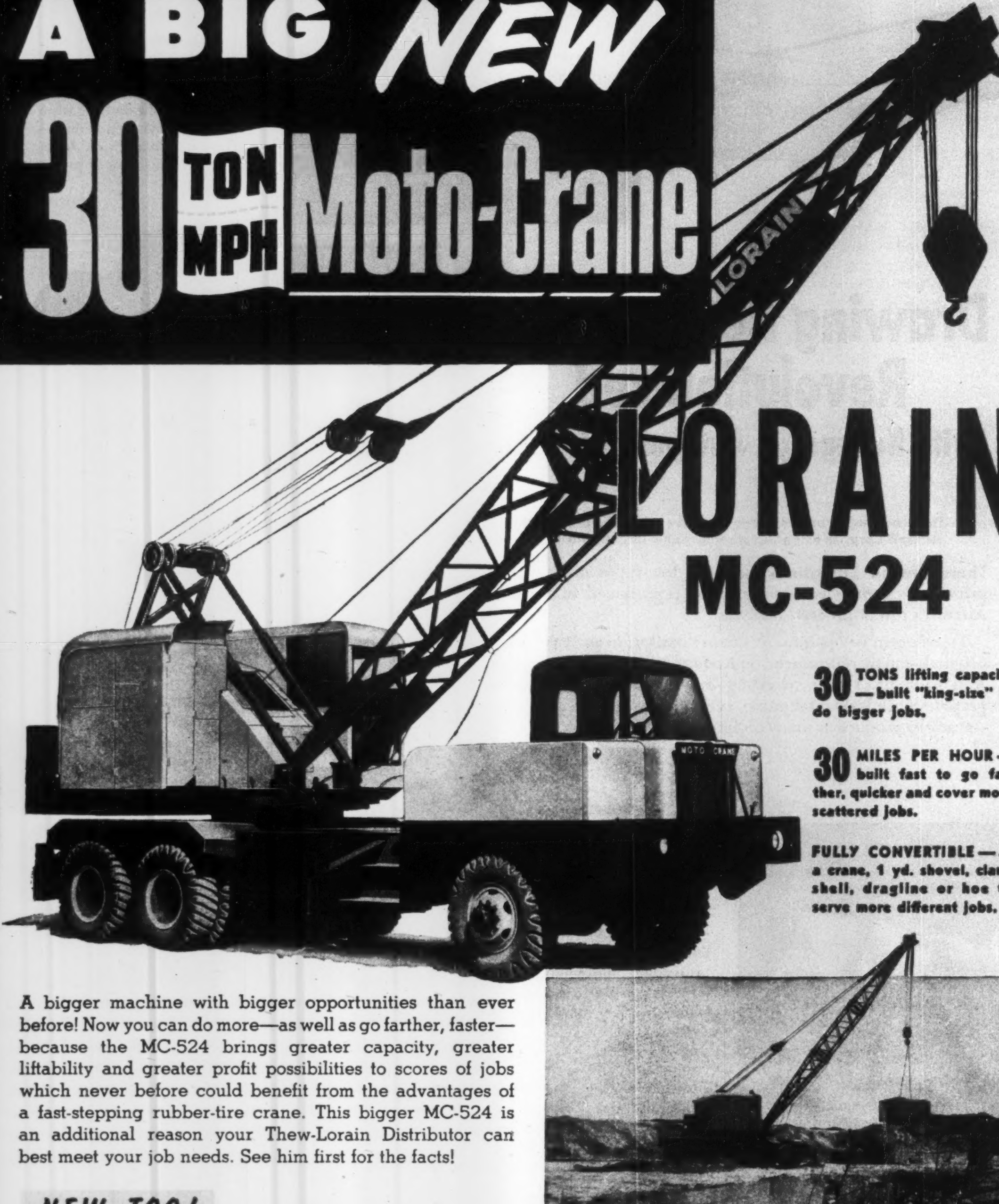


LORAIN

MC-524

30 **TONS lifting capacity — built "king-size" to do bigger jobs.**

30 **MILES PER HOUR — built fast to go farther, quicker and cover more scattered jobs.**

FULLY CONVERTIBLE — as a crane, 1 yd. shovel, clamshell, dragline or hoe to serve more different jobs.

A bigger machine with bigger opportunities than ever before! Now you can do more—as well as go farther, faster—because the MC-524 brings greater capacity, greater liftability and greater profit possibilities to scores of jobs which never before could benefit from the advantages of a fast-stepping rubber-tire crane. This bigger MC-524 is an additional reason your Thew-Lorain Distributor can best meet your job needs. See him first for the facts!

NEW TOO!

30-TON SELF-PROPELLED SP-524

A companion to the MC-524 Moto Crane — a new single-engine Lorain SP-524 Self-Propelled Crane with bigger capacity for a greater field of operations. 7-1/2 m.p.h. travel speed for localized mobility. Check it today!

THE THEW SHOVEL CO., LORAIN, OHIO

THE LORAIN

Another report by the Commission's parking subcommittee deals with off-street parking problems in the downtown area.

Included in the recommendations are a $96.4-million highways program, a $70-million sewer improvement and expansion, $33.5 million for water expansion, $113.5 million for schools, hospitals and other public buildings, and $5.6 million for garbage disposal.

The parking subcommittee's report recommended provision of 7,000 new parking spaces, at an estimated cost of $30 million to $35 million.

Considering means of financing the public works program, the group frowned on increased taxes. Instead, it recommended an increase of from 25% to 33% on water rates, and an additional sewer charge. Revenue from these sources would yield a total of over $33 million in the six-year period. Funds available from capital outlay total $120 million for the six years.

The sum of $165.6 million would be needed to complete the program. The finance subcommittee recommended that half of this be an out-and-out grant from the federal government, while the other half be acquired by means of a long-term no-interest loan from the federal government.

The increased parking program is to be self-liquidating; initial outlay would be provided by a non-interest federal loan, or by sale of revenue bonds.

The advisory committee pointed out that the district had special difficulties in keeping up with the expanding metropolitan population. Listed among these difficulties were:

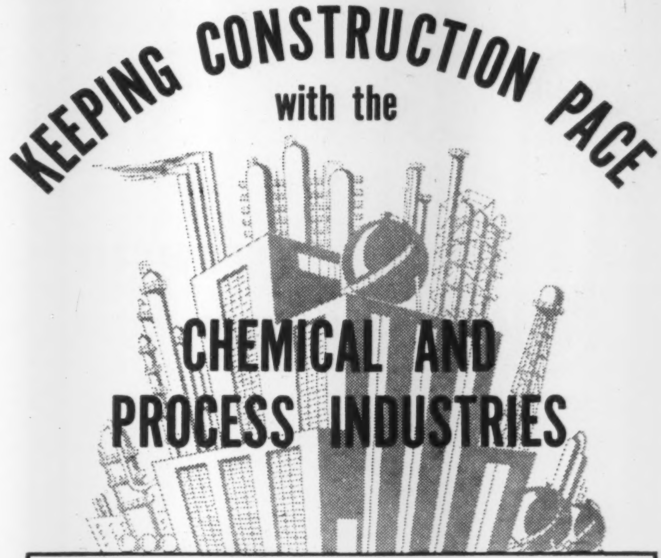
- Fixed boundaries of the district, prohibiting annexation of the ever-expanding metropolitan area.
- The great percentage of federally-owned, non-taxable property within the district.
- Decreased federal appropriations over the past decades—dropping from 40% of the total district costs in 1924 to less than 10% in 1952.

The district commissioners have set up drafting committees to write enabling legislation to send to Congress in January.

New York Port Authority reveals third tube plans

Following the ground-breaking ceremonies for the New York City shaft of the third-tube for the Lincoln Tunnel under the Hudson River (ENR Oct. 2, p. 25) the Port of New York Authority revealed its general plan for driving the tunnel.

The third-tube will be shield-driven



KEEPING CONSTRUCTION PACE
with the
CHEMICAL AND PROCESS INDUSTRIES

1904 —Potassium and sodium bichromate plant built at Jersey City, N. J. for Mutual Chemical Company

1939 —Largest outdoor boiler plant of its kind at that time, built for Texas Co., at Port Arthur, Tex.

1945 —First commercial streptomycin plant, built at Elkton, Va., for Merck & Co.

TODAY —Chemical and process plants for General Chemical, Solvay Process, St. Regis Paper Co., National Container Corp., and others

Each new development of "The Chemical Century" brings a fresh construction challenge—a challenge met by Merritt-Chapman & Scott through specialized knowledge of the field, and of the problems involved in translating laboratory research into full scale production.

The M-C&S record of repeat contracts is built on our ability to keep pace with every phase of chemical and process construction, and to deliver projects in minimum time at minimum cost.

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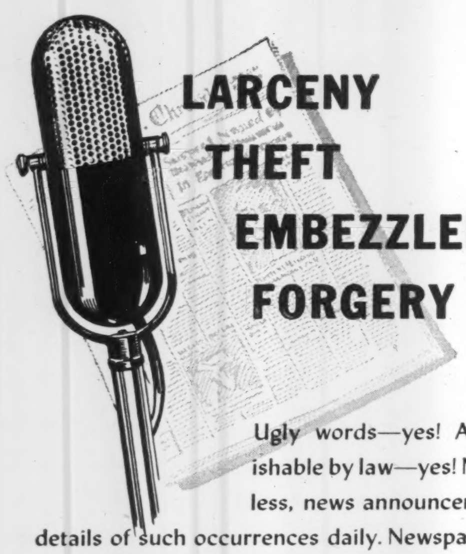


LARCENY
THEFT
EMBEZZLEMENT
FORGERY

Ugly words—yes! Acts punishable by law—yes! Nevertheless, news announcers give us details of such occurrences daily. Newspapers with startling headlines are filled with similar accounts.

Such losses caused by your employees can be serious to the financial structure of your business. Today's economic problems cause even trusted employees to crack under the strain and appropriate their employer's money and materials.

While the best and most complete controls will not prevent these, you *can* protect your business by a NATIONAL SURETY BLANKET FIDELITY BOND which covers dishonest acts of all employees. Our nearest office or **NATIONAL SURETY** agent in your city will gladly give you complete information as to coverage and cost.

INVISIBLE ARMOR ®

NATIONAL SURETY
CORPORATION
4 Albany Street, New York

using cast iron ring sections 31-ft in dia and 32 in. wide.

The tube will be driven from the New Jersey side of the river. A 55-ft vertical shaft will be excavated in the solid rock near the existing New Jersey ventilation building at the base of Kings Bluff in Weehawken, N. J. This shaft eventually will become the foundation for the third tube's New Jersey ventilation building. The tunnel shield will be erected in the shaft.

Several hundred feet east of the New Jersey shaft, the tunnel will emerge from the rock and enter the soft silty material which underlies the Hudson River and adjacent shoreline. The silt is in a semi-fluid state, and at that point compressed air will be induced into the tube.

While progress in the rock is limited to one or two rings a day, the movement in the silt may reach 15 rings or 40 ft in a day. The tunneling will go on 24 hours a day with about 200 sandhogs employed in the operation.

At the center of the river, the top of the tube will be about 75-ft below mean high tide, or about 25-ft below the bed of the river.

Soon after reaching the New York shoreline, the shield will again enter rock. It will continue through this rock to the New York shaft, which will be about 85 ft east of 12th Ave. on W. 38th St. This shaft, for which ground was broken Sept. 25, will be completed, on the initial contract, up to the street grade. It will have a removable circular plate built into its west face to receive the tunnel.

A New Jersey extension to the tunnel will be bored about 830 ft through the Palisades rock formation from the New Jersey shaft to a new portal adjacent to the existing portals of the Lincoln Tunnel in Weehawken.

In New York the tunnel will extend through the rock eastward 1,750 ft from the shaft to a new portal at the exit portal of the existing south tube. Part of this section will be constructed by rock tunneling and the remainder by open cut.

Engineers desecrate?

There will be no Frank Lloyd Wright Bridge at Wisconsin Dells, Wis.

The state highway commission announced last week that it would design its own steel and concrete bridge. The architect last year had offered to design—free of charge—a bridge that would bypass the city. Such a bridge, he said, would save the dells scenery from "desecration by mere engineers."

AT LAST

...a hoist that won't bind or buckle under

UNEVEN LOADING!

HY-TEST SAND & GRAVEL
ASPHALT PAVEMENTS

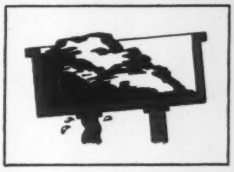
New heavy-duty St. Paul dump body teams with 31-ton capacity St. Paul hoist to deliver bonus payloads for Grasso Construction Co., Beacon Falls, Conn.

St. Paul's new uni-flex sub-frame with dual tension rods and rigid torque tube distribute uneven loading stresses . . . keep strut arms in perfect alignment, without binding, buckling.

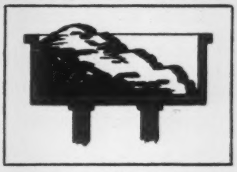
New self-aligning strut arms save down-time and maintenance!

You don't have to worry about "lifting arm troubles" with St. Paul's new bonus capacity hoists because *each arm automatically takes half the load, regardless of loading conditions.* This exclusive feature—proved by strain gauge tests on over 24,000 dumps (equal to 12 years of service) — means St. Paul can save you hundreds of dollars annually in hoist maintenance alone.

But that's not all. St. Paul also gives you *up to 22% more payload capacity per dollar* because of better lifting leverages, combined with reduced deadweight and greatly improved hydraulic efficiency. See for yourself how these great new St. Paul hoists and dump bodies work. Drop in on your St. Paul Distributor, or *mail coupon for free literature.*



Ordinary hoists frequently develop a bind on the loaded side, creating severe wear and buckling of arm. Result: Slowed-down performance and eventual replacement of costly lifting assembly.



New St. Paul hoists not only equalize uneven loads on strut arms, but also provide replaceable bushings at critical load points to simplify field repair when normal wear finally does occur.

St. Paul
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Hoists and Dump Bodies • Barrow Loaders
Truck Patrols • Elevating End Gates

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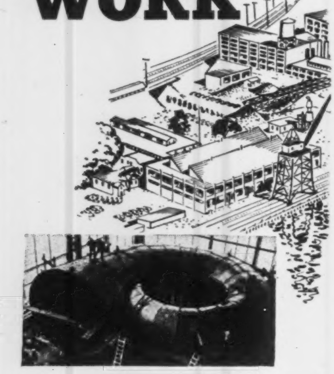

STEEL PLATE WORK

TURBINE CASINGS and other heavy steel plate work are fabricated at Pusey-jones of Hot-Rolled, High-Strength, Low-Alloy Steel.

Every facility for large scale metal fabricating: — Heavy plate shop equipment — Rolls — Shears — Bending furnaces. Stress relieving furnace 33'x18'x16' up to 2100°F. Machine shop for facing, turning, and boring. 50 ton capacity gray iron foundry. Deep-water transportation on one side, the Pennsylvania RR on the other. Talk to our development engineers.

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THE PUSEY AND JONES CORP.
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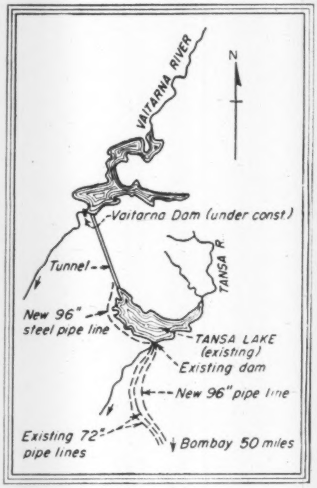
Established 1848

PUSEYJONES

Bombay tunnels complete



Bombay water supply will be more than doubled by new mountain reservoir and supply lines.

The plan of the city of Bombay, India, to increase its water supply from about 110 mgd to 250 mgd moved a step nearer fulfillment last summer with the holing through of the last of the three tunnels that will connect the present mountain reservoir, Tansa Lake, with the new Vaitarna reservoir five miles away (ENR Feb. 1, 1951, p. 39). In the meantime, work is continuing on an 8-ft diam steel pipeline that will supplement the present two 72-in. pipelines, which carry the water 50 miles to the city. Vaitarna Dam that will form the new reservoir is expected to be completed in 1954.

Contractors on the work are Hinds Constructions Ltd & Patel Engineering Ltd., and, according to Y. G. Patel, the 20,500 ft of tunnel required about 3 years to construct. Concrete lining work is now about half finished.

Mr. Patel points out that there are three 10-ft diam horseshoe-shaped tunnels, connected by steel pipe across two valleys, in the supply line between Vaitarna and Tansa reservoirs. The longest two tunnels (8,716 and 9,840 ft) were drilled from the ends and from two intermediate shafts on each. The deepest shaft was 297 ft, and it was 22 ft in diam.

The maximum monthly progress on any one tunnel face was 218 ft. Portable compressors were used, and the rock drills were operated at 80-lb pressure. At the beginning, ordinary drill steel was used, and an average of about 15 ft of drilling was attained in the trap rock before the bits had to be resharpened. Later Swedish Coromant drill rods were substituted, and 800-ft average advance was attained between sharpenings.

Muck was removed in 1-cu yd side dump cars. Loading and hauling were accomplished largely by hand although some mechanical equipment was used in a few of the headings. It required between 3 and 4 hours to remove the 625 cu ft of loose rock resulting from one 4-ft blast. Hoisting at the shafts was done by hand.

The urgency of the need for the new water supply is proved by the fact that per capita consumption in the city has dropped from 80 gal per day to 40 since the war because of a doubling of its city's population. Concern is also felt for the safety of the existing dam at Tansa Lake where considerable uplift pressures have developed. A scheme to tie the dam to the foundation with a system of tensioned cables was being considered a year ago (ENR July 5, 1951, p. 54), but no progress on letting a contract has been reported. Should the dam fail the city would be completely without water.

Australia plans $170 million harbor work

Australian construction sources have estimated that national projects for harbor expansion and improvement will call for an expenditure of more than $170 million, and offer opportunity for both Australian and overseas engineers and contractors to do work.

Among the projects planned are these:

The job at Port Adelaide, in South Australia, to cost more than $50 million; extensions at Western Australia's principal port at Fremantle, to cost about $45 million; dredging operations for 46 new docks at the port of Melbourne, to cost $26 million.

There are plans for the development of Portland, in the state of Victoria, as a new deep seaport and the improvement of Geelong's port facilities. In New South Wales, a new port is planned for Iluka and improvements and extensions for Newcastle and Port Kembla.

INTERNATIONAL

Turkey gets funds for road machinery

Purchase of additional highway construction and maintenance equipment to extend Turkey's four-year-old program of road building will be made possible by a recent Mutual Security Agency grant of $3 million.

Since 1947, when the Turkish highway development plan was executed under the Marshall Plan, $16 million of an over-all $58-million estimate has been spent.

Of the new grant, $2.6 million will be used to buy graders, crushers, a screening plant, trucks and bridge foundation testing devices. The remaining half million will go into salaries and expenses of highway experts from the U. S. Bureau of Public Roads who are supervising the Turkish program.

River diversion planned in the Congo

For the first time in the history of Africa, the waters of one river are being diverted into another for purposes of power generation.

A three-mile rock tunnel, bringing the waters of the Lualaba (Upper Congo) into the bed of the Senka (another Congo tributary) is now underway.

The waters diverted will feed a new hydro station being built by Union Miniere du Haut Katanga at N'Zilo, in the Belgian Congo. Engineers said that the Senke River, in a rocky canyon, does not carry enough water but does offer a good power site.

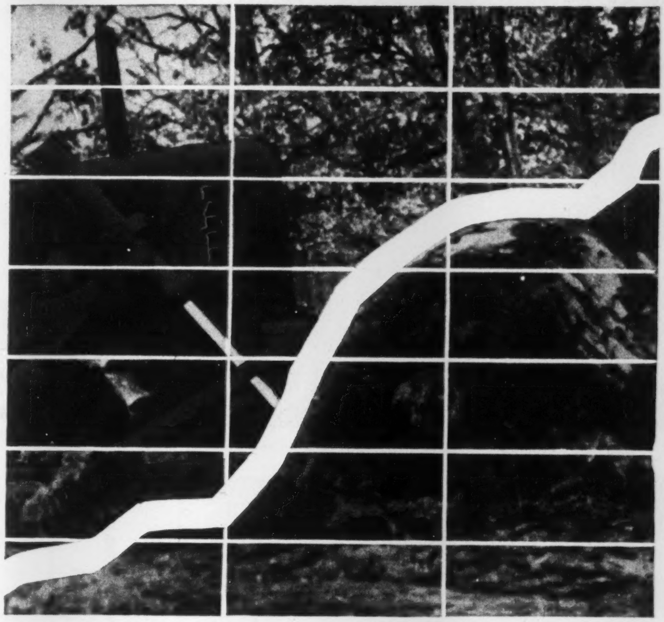
The new power station is part of a drive to harness the vast waterpower resources of the Belgian Congo—estimated at 178 million h.p. available.

Portugal pushes $483-million building plans

The Portuguese government, pushing desperately to bring a predominantly agricultural country into industrial balance, has announced a $483-million (13,500 million escudos) six-year program.

In European Portugal, the largest single group of investments will go into hydro-electric power schemes and power transmission and distribution systems. Four major projects are planned, two of them already started.

A fund distribution to the Portuguese territories overseas includes: Cape Verde Islands; Portuguese Guinea; St. Thomas and Principe Islands; Angola; Mozambique; Portuguese India; Macao; and Portuguese Timor.



Designed with the Profit Curve in mind...!

Baker Blades have the *maximum* "ROLL-ACTION"—from cutting edge to moldboard top, they're scientifically contoured to roll the load *with minimum resistance.* Thus you get more push from your investment in horse-power—bigger pay-loads from Baker's advanced DESIGN-FOR-PROFIT curve.

Add Baker's job-proved positive down-pressure to "ROLL-ACTION"—plus Baker *fingertip control* and *quick direct-lift*—and you have concrete reasons why more buyers are saying, "I want an A-C with a *Baker* Blade."

Baker Bulldozers, Gradebuilders and Root Rippers—available in engine-mounted hydraulic, frame-mounted hydraulic (the new no-pushbeam 9-X), and cable-controlled units—featuring easy interchangeability—are designed exclusively for the Allis-Chalmers crawler line.

Ask your Baker, A-C Dealer to come out now—get the *complete* facts.

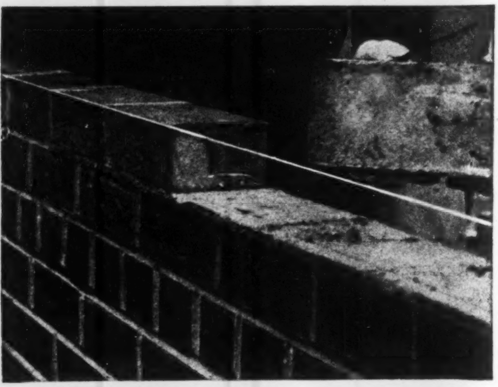
THE BAKER MANUFACTURING COMPANY
Springfield, Illinois

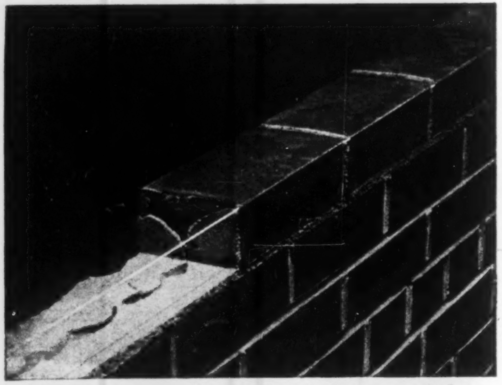
Baker—The *most versatile* line of tractor attachments

GOOD BRICKWORK = GOOD DESIGN + GOOD WORKMANSHIP + GOOD MATERIALS

"SLUSHING" INVITES LEAKAGE IN BRICKWORK

Slushing does not properly fill the voids in the head joints.


When mortar is spotted on only one corner of the brick, slushing seldom fills the voids.


Even when mortar is spotted on both corners of the brick, slushing will not always fill the voids.

WE SUGGEST THAT—

Brick should always be so laid that when the brick is shoved into place, the head or cross joint will be *filled solid* with mortar, *without slushing*. If the joints are not completely filled, water may leak through the voids to the inside of the building.

The photos at the left show the voids that often result when slushing is used to "fill" a joint. Even when mortar has first been spotted on both corners of the brick, *slushing cannot be relied upon to fill the voids completely.*

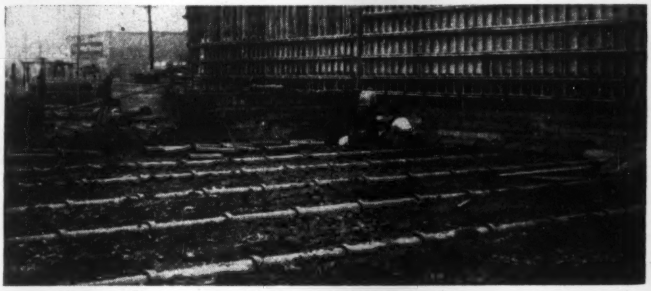
The great plasticity of Brixment enables the bricklayer to throw plenty of mortar onto the brick to be placed — to use plenty of mortar in the bed joint — and still shove the brick easily into position, with excess mortar oozing out all around, and with all voids filled.

BRIXMENT

Brixment mortar has greater plasticity, higher water-retaining capacity and bonding quality, greater resistance to freezing and thawing, and freedom from efflorescence. Because of this combination of advantages, Brixment is the leading masonry cement on the market.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

FIELD AND OFFICE



OLD DOG, NEW TRICKS—Vitrified clay pipe forms an air circulation system to prevent ground freezing under a basementless cold-storage building in San Francisco.

Clay pipe air system prevents ground freezing

More than 5,000 ft of vitrified clay pipe is being installed beneath the subfloor of a new San Francisco cold-storage building to prevent ground from freezing under the basementless structure.

To warm the floor of the 136 x 275 ft Merchants Ice and Cold Storage Company's storage room—where temperatures will drop to 50 F below zero—air at normal outside temperatures will be circulated through 6 to 8 in. clay-pipe ducts.

Although most of the pipe is being laid with dry joints in crushed rock, the header will have cemented joints.

Floor of the storage room is a concrete slab topped with a layer of cork and a concrete finish.

PROTECTORS, normally used for pipe threads, keep pile tips from splitting.

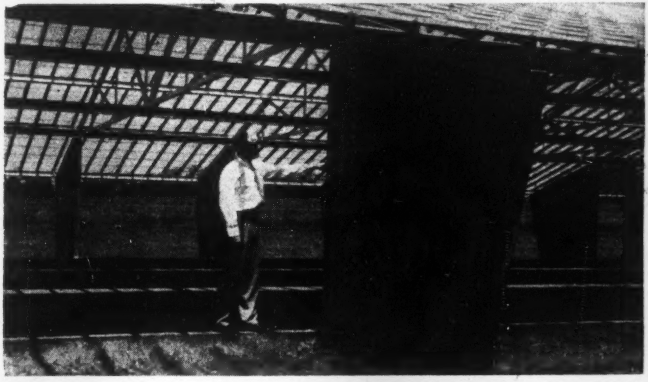
How to save pile tips when driving butt-down

Pipe-thread protectors, costing forty cents each, are enabling the Vollmar Bros. Const. Co. of St. Louis to drive creosoted 80-ft piles butt-end-down. In fulfillment of a contract, with the U. S. Corps of Engineers, calling for piles driven alternately tip-down and then butt-down to form 19-pile clusters, difficulty with excessive splitting and brooming was encountered when the piles were driven in the butt-down position.

The piles, measuring 8-in. dia at the tip, are being driven with a single acting hammer, 7,260 ft-lb energy, to a penetration of 30 ft.

Upon encountering this difficulty, various methods of binding the tips were tried. Among these were the wrapping of the tip with cable, and the use of an auxiliary pile cap. These methods were discarded as unsatisfactory due to performance or excessive cost. An assortment of thread protectors then was secured. The tips of the piles to be driven butt-end down are trimmed to permit the thread protector to be driven manually onto the pile tip. Pile tip trimming is held to a minimum by having available an assortment of both internal and external pipe-thread protectors. In this way a better graduation in internal diameters can be secured.

Additional economy is realized by setting fire to the cut-off ends of piles, and salvaging the used pipe-thread protectors.—John F. Winkler, Vollmer Bros. Const. Co., St. Louis, Mo.



ULTIMATE IN CROSS-VENTILATION—No sides make for more efficient, better looking sludeg-bed shelter.

Speed-up sludge drying

After one year of use, George C. Wallace, head engineer of the Honolulu, Hawaii, division of sewers, is glad he designed his new sludge drying enclosure with cross ventilation. The glass building has no sides.

Drying time has been shortened considerably by the free flow of air across sludge beds, made possible by absence of sidewalls.

Concrete "wings" support the greenhouse roof along its sides. These solid concrete supports at each roof truss carry an overhang that shelters the beds from rain, and they also act as wind breaks for all but direct side-on winds.

Three sludge beds are sheltered by the sideless structure. Above each bed is a monorail. A dump bucket on chain hoist can switch to any line and travel out any one of the end doors to dump into trucks for disposal.

The greenhouse is 68x92 ft, enclosing three 14x86-ft sludge drying beds. It cost $38,500.

On saved shifting time alone

YOU CAN GAIN UP TO 25

THE NEWEST, FINEST LINE ON EARTH!

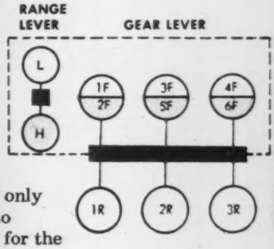
HD-5	HD-9	HD-15	HD-20
40 drawbar hp., 11,250 lb.	72 drawbar hp., 18,800 lb.	109 drawbar hp., 27,850 lb.	Hydraulic Torque Converter Drive, 175 net engine hp., 41,000 lb.

Percent More Production

WITH THE MODERN SHIFT PATTERN ON ALLIS-CHALMERS HD-9 AND HD-15 TRACTORS

It takes just half the time and effort to change from low forward to fast reverse with the Allis-Chalmers HD-9 and HD-15 transmission. This shifting time saved becomes production time gained on bulldozing and other jobs calling for a short forward-backward cycle. For example, job studies prove that on backfilling, pusher work, working around large excavators, digging and loading with front-end shovels—other jobs where frequent shifts are required—you can make five passes in the time usually required to make four...actually increase production up to 25 percent.

Here's how it works



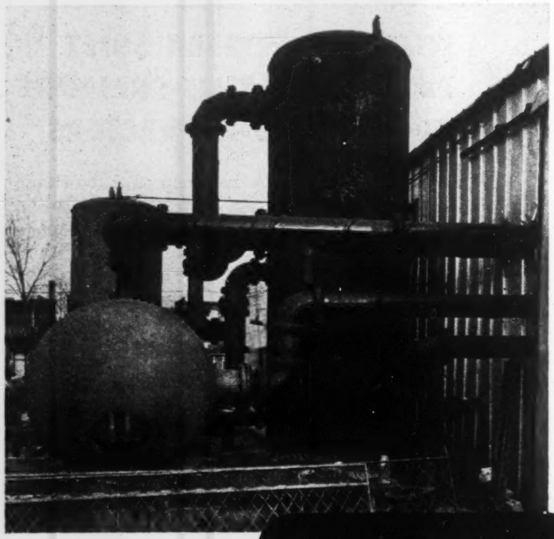
You go from any forward to any reverse speed with one simple shift of the gear lever. The only time you touch the range lever is to select the forward range you want for the job to be done—just set it and forget it.

The constant-mesh Allis-Chalmers transmission makes shifting smooth and effortless...without gear clashing. And it's so easy that the operator can *always* take advantage of high-speed reverse.

This exclusive shift pattern, together with all-steel welded construction, unit assembly, 1,000-hour lubrication, are just a few of the reasons you get more work done with the new *designed-for-your-job* Allis-Chalmers tractors.

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.



Familiar Scenes
ON CONSTRUCTION JOBS

High Pressure Air Lines by NAYLOR

The extra strength and safety made possible by the exclusive Naylor Lockseam Spiralweld structure makes Naylor light-weight pipe the answer for high pressure air lines in construction service. Light weight, ease of handling and speed of installation are other reasons why you see more and more Naylor Pipe on construction jobs. Sizes from 4″ to 30″ in diameter—thickness from 14 to 7 gauge. All types of fittings and connections.

Write for Bulletin No. 507

NAYLOR PIPE

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1248 E. 92nd St., Chicago 19, Ill.
New York Office:
350 Madison Ave., New York 17, N.Y.

LEGAL

Damages recoverable on uncompleted contracts

A contractor was employed to supervise the construction of an addition to a motel. The work was started and thereafter on two occasions was stopped upon orders of the Civilian Production Administration. After the CPA was abolished, the owner, without the knowledge of the contractor completed the project. The contractor then brought an action to recover the damages sustained by reason of the owner's failure to employ him to complete the project.

The court in discussing the measure of damages to be applied in a case like this stated: "The measure of damages here applicable is that applied in Bradley v. Nevada-California-Oregon Ry., 42 Nev. 411, 422, 178 P. 906, 909, where it is stated:

" 'The amount which would have been received if the contract had been kept is the measure of damages if the contract is broken, and this means the value of the contract, including the profits and advantages which are its direct results and fruits. 8R. C. L. 452. And in case of contracts like this, among other things, the difference between the cost of doing the work and the price to be paid for it. This difference, we apprehend from the evidence, was the inducement and real consideration which caused the contractor to enter into the contract, and to deprive him of it when the owner put an end to the work without his fault would be unjust.' "

(1) Cladianos v Friedhoff, 240 P. 2d 208 Supreme Court of Nevada, Jan. 31, 1952.

Prevention of performance

A contract with the government provided that the contractor would deliver certain material within a stipulated date and also provided that upon the failure of the contractor to deliver the material within the specified time, "there will be deducted from payment to him, as liquidated damages, not as a penalty, an amount equal to 1% of the bid price of the undelivered portion of the order for each calendar day of delay, including Sundays and holidays."

The court held[1] that "under this provision, the right of the government to make the deduction was absolute and positive without regard to whether the default in performance was due to an act of God, or otherwise. It is the general rule that where an obligation or duty is imposed upon a person by law,

STOP RUST!

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In All Colors, Aluminum and White!

Cut maintenance costs. Apply RUST-OLEUM directly over rusted surfaces without removing all the rust! Just wirebrush and use sharp scrapers to remove rust scale and loose particles, then apply by brush, dip, or spray. Costly sandblasting and chemical precleaning are not usually required. Specify RUST-OLEUM for every rustable metal surface. Prompt delivery from Industrial Distributors in principal cities.

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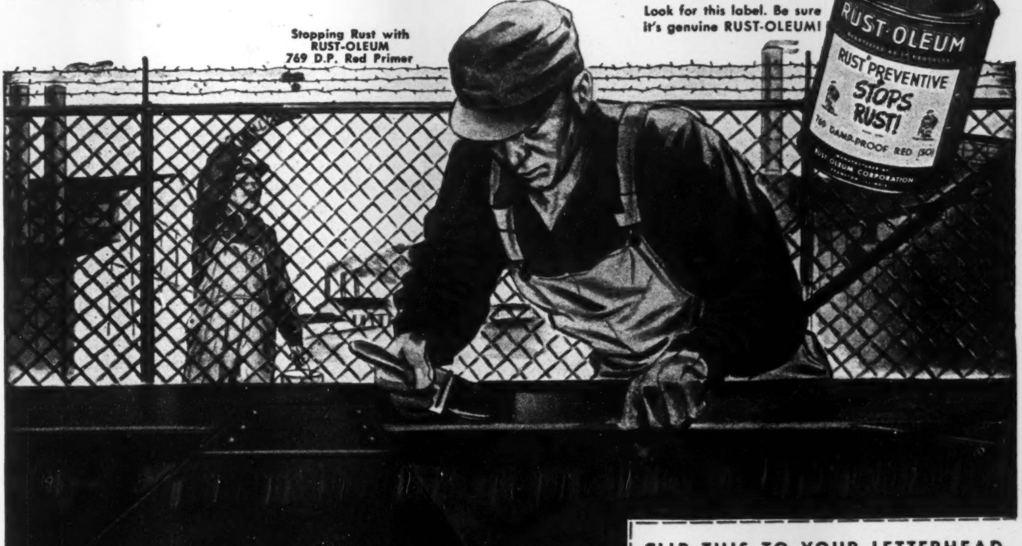
FREE SURVEY: A RUST-OLEUM specialist will gladly survey your rust problems. He'll make specific tests and recommendations. No cost or obligation. See Sweets for complete catalog and nearest RUST-OLEUM distributor, or write for literature on your company letterhead.

Protects Tanks, Girders Fences, Stacks, Metal Sash, Roofs, Buildings, Marine and Railroad Facilities

Look for this label. Be sure it's genuine RUST-OLEUM!

Stopping Rust with RUST-OLEUM 769 D.P. Red Primer



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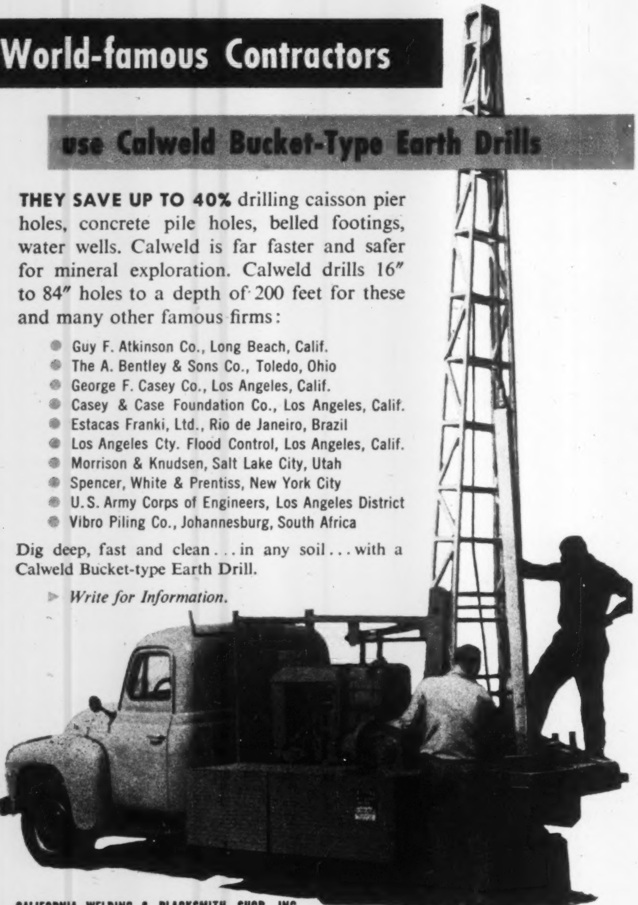

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he will be absolved from liability for nonperformance if his performance is rendered impossible without fault on his part, by an act of God. But with certain exceptions and qualifications having no material bearing here, it is well settled that where one voluntarily enters into a positive agreement binding himself to perform a lawful and possible act within a specified time, he is not relieved of that duty or absolved from liabilty for failure to fulfill the covenant by a subsequent impossibility of performance caused by an act of God."

The contractor claimed that the government was not authorized to collect liquidated damages because the delay had resulted from "an act of God."

He also maintained that although the deduction was denominated as liquidated damages it was, in fact, a penalty because the amount bore no reasonable relationship to the damage actually sustained. The court rejected both of these pleas.

(1) Broderick Wood Products Co. v United States, 195 F. 2d 433, United States Court of Appeals, Tenth Circuit, March 17, 1952.

Proof of agreements

"It is a well settled rule that when parties have reduced their agreement to writing, parol [oral] evidence is not admissible to contradict it for the reason that the written memorial is the best evidence of what the parties have agreed to.[1] Prior negotiations are deemed merged in the written contract of the parties, and the law excludes oral testimony which tends to contradict, vary or add to the terms as expressed in writing.[2] Under this rule parol testimony as to communications or declarations of the parties at or before the execution of a written contract will not be received for the purpose of substituting a different agreement for the one expressed in the writing.[3] But this rule applies only when the entire contract has been reduced to writing, for if merely a part has been written and the remainder rests in parol, it is competent to establish the latter by oral evidence, provided it does not contradict what has been written."[4]

(1) Ostroff v Stephen Girard, Inc., 85 A. 2d 174 (Supreme Court of Rhode Island, Dec. 31, 1951.)

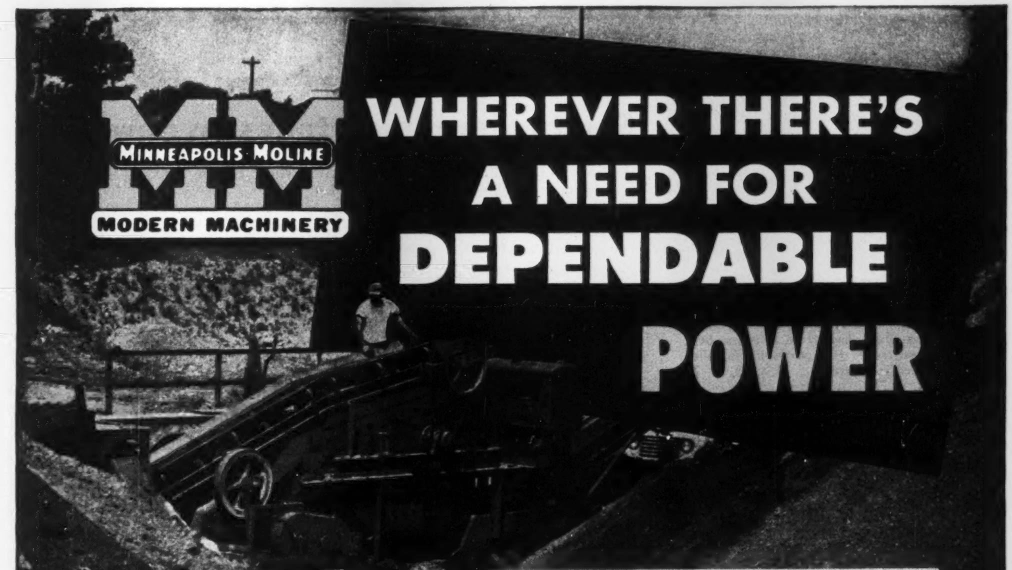
(1) Evans v Freeman, 142 N. C. 61, 54 S. E. 847.

(2) American Potato Co. v Jenette Bros., 172 N. C. 1, 89 S. E. 791.

(3) Potter v National Supply Co., 230 N. C. 1, 51 S. E. 2d 908.

(4) McLawhon v Briley, 67 S. E. 2d 285, Supreme Court of North Carolina, Oct. 31, 1951.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)



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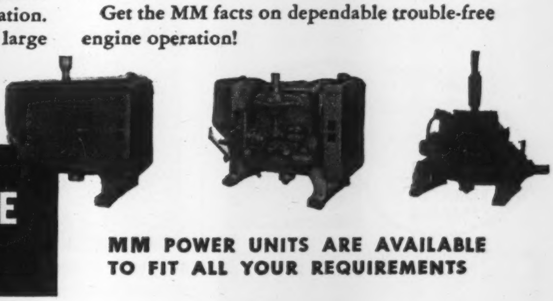

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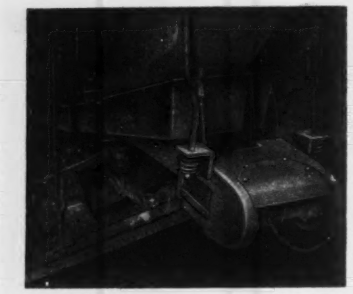

Two model F-22 Syntron Feeders feeding coal from track hopper to conveyor belt. These feeders, in this particular installation, handle a carload of coal in 20 minutes.

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MEN AND JOBS

Sanitary engineer takes on new duties

Mark D. Hollis has long been known as a government sanitary engineer of many parts. This month he expanded his already wide field of responsibility when he moved up to the position of deputy chief in the Bureau of State Services, U. S. Public Health Service.

Hollis continues to hold down two jobs: As chief sanitary engineering officer of PHS he keeps the job of directing all the service's environmental health activities, and in his new post, he takes on added administrative duties within the Bureau of State Services. Until this month he served the bureau as associate chief in charge of its environmental health functions.

Apart from his regular working titles, Hollis's two-star military rank as assistant surgeon general can be said to correspond with his dual responsibilities. His record as an able administrator is well known in PHS. In fact, the recent promotion is a tribute to his management ability, which showed up markedly in 1946 when he became officer in charge of the communicable disease center in Atlanta. He worked up comprehensive programs for control of malaria, typhus and other diseases spread by insects, leading to virtual eradication of those diseases.

Earlier, during an absence from PHS, he had been director of the division of engineering for the North Dakota State Health Department from 1934 to 1939. In 1939 Hollis returned to PHS in the office of stream sanitation, now the environmental health center, at Cincinnati. Two years later he became a commissioned officer, as a sanitary engineer, and worked on malaria control in war areas until 1946.

As second in command of the Bureau of State Services under Dr. Otis L. Anderson, Hollis will help run a wide range of programs administered by eleven divisions of the bureau. Among them are the divisions of sanitation, water pollution control and engineering resources, along with others ranging from chronic diseases to vital statistics.

MARK D. HOLLIS, gets more duties in Public Health Service.

• Co-operation—Programs of the bureau are built around cooperation with states and municipalities. The collaboration is carried out with the help of a regional medical director in each of ten regions; under him is a regional engineer and a program director for each program, including water pollution control.

Bureau efforts to stimulate and supplement state work consist largely of grants for specific programs or in support of general health activities. Technical assistance on state and interstate problems is given by the bureau through investigations, demonstrations and consultation.

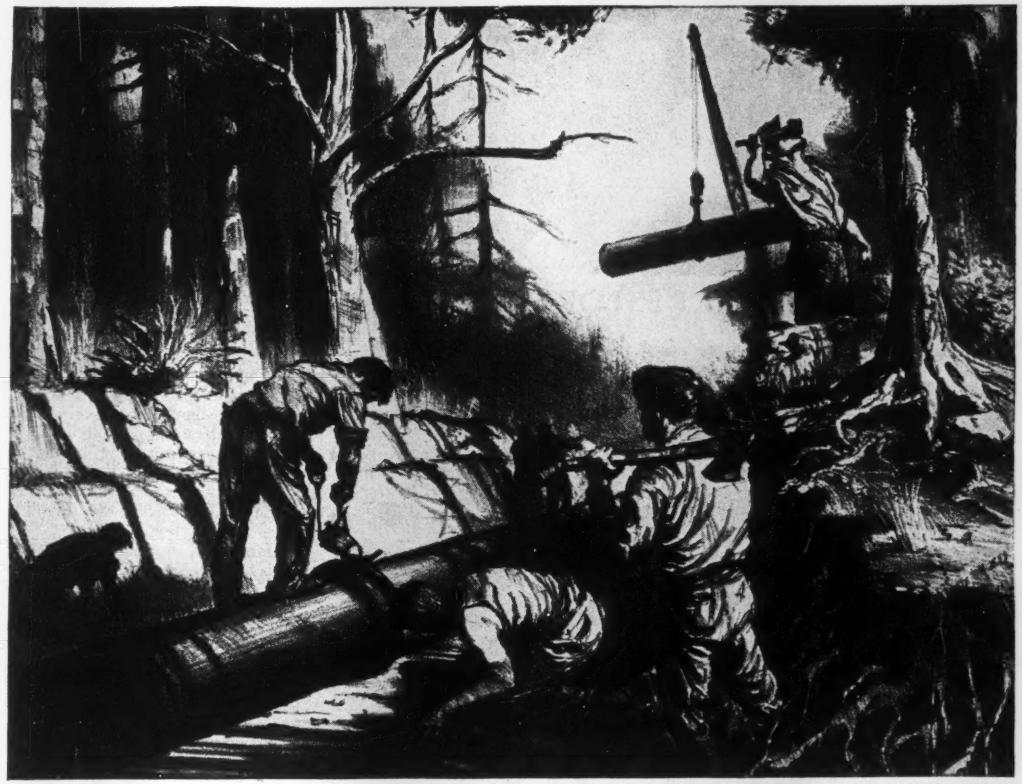
Direction of all these varied programs centers in the bureau chief and his new deputy. As effective research tools in meeting their problems, they have the communicable disease center and the environmental health center, just now getting the better facilities they needed, especially for water studies. One of the first objectives of the bureau will be to coordinate the two centers more closely and have them work together as reciprocating and complementary units of a research team.

California dams chief quits in disagreement

Walter Brown of Sacramento, Calif., has been named head of the design and construction of dams branch of the California Division of Water Resources.

He succeeds W. H. Holmes, who

(*Continued on page 72*)



Lithographed on stone for U. S. Pipe and Foundry Co. by John A. Noble, A. N. A.

PIPE LINE CREWS encounter all kinds of conditions from deep woods to the congested streets in the heart of a large city's business district. This cast iron pipe installation could be either a water supply line from a mountain reservoir or a sewer force main leading to a remote treatment plant. If it were a gas transmission line it would, of course, be mechanical joint pipe.

U. S. cast iron pipe in sizes from 2-inch through 24-inch are cast *centrifugally* in metal molds with bell-and-spigot, mechanical joints and plain ends. The *pit cast* process is used in producing all sizes of flexible joint and flange pipe as well as all pipe 30-inch and larger. Highly developed production controls guard the uniformly high quality of U. S. Cast Iron Pipe.

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CEMENT GUN CO. RESTORES BRIDGE

Photo above shows the disintegrated condition of an abutment on a reinforced concrete bridge in a large Western Pennsylvania city. Repair work on this structure necessitated an almost complete rebuilding of the abutment. To accomplish this, the end span was jacked up and new expansion plates were placed at the bridge seats. In addition to repair of abutments—beams, girders, and arch ribs were reintegrated with "GUNITE" wherever disintegration had taken place.

This is just one of many typical "GUNITE" repair jobs which have been done by our contract department for Railroads and State Highway Departments throughout the country. For information on "your job" and description of many other "GUNITE" jobs performed by us send details and request catalog A2400—on your letterhead, please.

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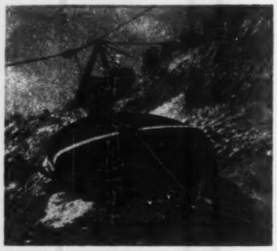

CRESCENT Scraper buckets are built in five types and fifteen sizes. Pictured above is a 3 cu. yd. size handling heavy excavating.

On thousands of earthmoving jobs, Sauerman Scraper machines equipped with the unique Crescent bottomless bucket, are cutting costs in digging, hauling and dumping almost every kind of material.

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resigned from the post Oct. 3 because of a difference of opinion with A. D. Edmonston, state engineer, over operation of the dams office.

While he admitted the disagreement, Holmes had no further comment. However, it was learned through other sources that Holmes thought he should have had more freedom in making decisions rather than clearing even minor matters through Edmonston, who is head of the Division of Water Resources. Edmonston had no comment.

Holmes worked for 24 years with the Division of Water Resources. The branch of the division which he headed was responsible for approval of plans and inspection of construction of all non-federal dams built in California. The law providing for such supervision was passed by the state legislature in 1929, a year after the disastrous failure of the St. Francis Dam in Los Angeles County.

Holmes noted that the standards of safety requirements for dams have been raised steadily through the years.

He offered the prediction that there will be a big upsurge in building of dams in California because of the new approach to financing by the sale of revenue bonds.

He cited as an example the use of revenue bonds by the Oakdale Irrigation District and the South San Joaquin Irrigation District to build a power and irrigation dam. The bonds are backed by a long-term contract with the Pacific Gas and Electric Co. to make annual payments which will be sufficient to pay interest, retire the bonds and for all operation and maintenance costs. The PG&E will buy the power produced.

Brown, Holmes' successor, is a civil engineering graduate of the University of Arizona. Before going to work for the state five years ago in the Construction and Maintenance of Dams Section of the Water Resources Division, Brown was with the C. F. Braun Engineering and Building firm of Alhambra, Calif.

New construction course

Men and women engaged in the building industry, or preparing to enter the field in an administrative capacity can now earn a B.S. degree at Columbia University.

The university has established a major program in Construction Management leading to a Bachelor of Science degree. The program calls upon the entire resources of the university.

(*"Men and Jobs" continued on p. 74*)

"CATERPILLAR"

Auxiliary power tactics on the Cachuma Dam

FLOODLIGHTS for night work are powered by a "Caterpillar" D4600 Electric Set. Other lighting stations on the dam are also powered by reliable yellow units.

Across the Santa Ynez River, seven miles southeast of Santa Ynez, California, the new Cachuma Dam furnishes domestic and irrigation water storage for Santa Barbara and surrounding agricultural areas. Built at a cost of $6,722,500, this earthfill dam measures 216 feet high and 3,000 feet long. Auxiliary power was used extensively to help speed its construction by Mittry Constructors, Los Angeles, who standardized on "Caterpillar" units for the purpose.

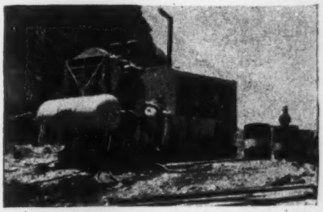
To keep the work moving after dark, Mittry set up floodlights in strategic areas. "Caterpillar" D4600 and D3400 Electric Sets operated these lighting stations, while two D3400s were used for lights and power in the carpenter shop. Assisting in the work itself, two D17000 Electric Sets furnished power for six electric pumps that drained seepage from the foundation excavation. And three "Cat" D13000 Engines provided power for compressors on drilling jobs.

Mittry also relied heavily on other "Caterpillar" equipment to push the project through profitably. Seven D8 and D7 Tractors with 'Dozers pioneered roads, leveled fill, cleaned up around shovels and draglines and served as pushers. And a No. 12 Motor Grader maintained haul roads.

Standardization on sturdy yellow equipment has been proved profitable time after time by leading contractors. All units in the line – engines, electric sets, tractors, motor graders and earthmovers – function with a minimum of down-time under tough conditions. Maintenance problems are simplified. And responsibility for service is centered in one organization – the nearby "Caterpillar" Dealer. With his stock of genuine "Caterpillar" parts and trained mechanics, he's an important factor in keeping units on the job. He is always available for service or information on "Caterpillar" equipment.

PUMPS powered by a D17000 Electric Set suck seepage from the foundation excavation. One other D17000 is used for this purpose.

LEVELING FILL, pioneering roads, acting as pushers and cleaning up are tasks done by this D8 Tractor with No. 8S 'Dozer. Six other big yellow 'dozers are on the job.



COMPRESSORS get their power from D13000 Engines. Two other D13000s are also used by Mittry for providing compressed air for drilling on this operation.

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UNITED STATES STEEL

OWEN G. STANLEY, engineer for South Pacific division Army Engineers, retired.

Chief civil engineer serves for 46 years

Owen G. Stanley, after 46 years as a civilian engineer for the Army Corps of Engineers, San Francisco, Calif., and well known for his flood control work in the West, retired Sept. 30 at the age of 70.

His service in California began, after graduation from Stanford in 1906, when he surveyed the Yuba River as part of the California Debris Commission program. He started out on a three-months' assignment and stayed nearly a half-century, working on the state's waterways—especially the San Joaquin and Sacramento rivers.

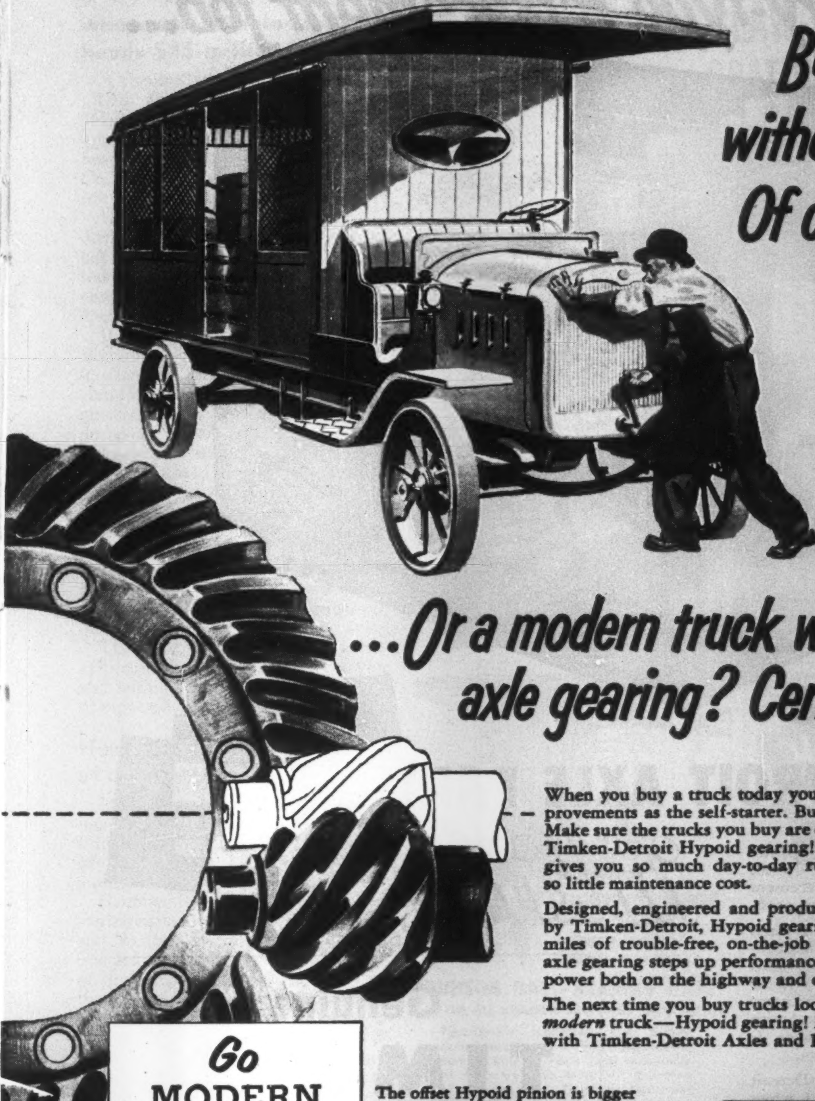
- **Accomplishments**—Results of his efforts have included the debris-storage dam program which resulted in many dams—the Englebright Dam on the Yuba River, the North Fork Dam on the American River, and the Stockton Deep Water Channel. His largest project was the Sacramento River Flood Control Project, upon which he did the original survey and followed it up with design and construction.

He was a chief civilian engineer of the Sacramento district office from 1919 until 1939, when he was transferred to the South Pacific Division office in San Francisco. There he was in charge of all flood control and debris-control work in the states of California, Arizona, Utah and Nevada.

He was appointed chief civilian engineer of the South Pacific division in 1947, responsible for all engineering activities in both military and civilian construction. Since 1951, he has been a special assistant to the division engineer.

(*"Men and Jobs" continued on p. 77*)

Buy a truck without a starter? Of course not!...



...Or a modern truck without Hypoid axle gearing? Certainly not!

When you buy a truck today you take for granted such modern improvements as the self-starter. But don't take *too much* for granted! Make sure the trucks you buy are equipped with modern, cost-cutting Timken-Detroit Hypoid gearing! No other heavy-duty axle gearing gives you so much day-to-day ruggedness and dependability with so little maintenance cost.

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The next time you buy trucks look for, and insist on, the mark of a *modern* truck—Hypoid gearing! It's available on all trucks equipped with Timken-Detroit Axles and Brakes.

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The offset Hypoid pinion is bigger and stronger. Bearings are bigger. More teeth are in contact, reducing loading per unit of contact area. Torque-transmitting capacity is increased. Slower gear ratios are practical without loss of strength.

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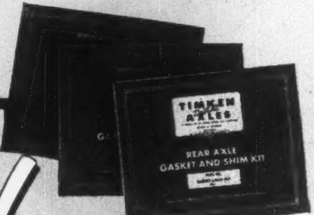
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Look for it!

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Anaconda Aluminum chief heads $45-million job

A chemical engineer who won recognition among metals men during World War II as a defense plant manager and production expediter, will head the Anaconda Copper Mining Co.'s new $45-million aluminum project near Columbia Falls, Mont.

He is Francis O. Case, vice-president and member of the board of the big copper concern. Recently Case was elected to the presidency of a new subsidiary, Anaconda Aluminum Co.

It will be Case's job to get the aluminum reduction plant built and in shape to turn out 50,000 tons of aluminum a year by early 1954. Engineers, power linesmen and bulldozers already are at work at the plant site near the base of Teakettle Mountain in Flathead County.

Case, who was born in Chattanooga, Tenn., 57 years ago, won most of his reputation as a capable project organizer during World War II when Anaconda loaned him to the government as general manager of the vast Basic Magnesium, Inc., plant at Henderson, Nev.

The plant, started in late 1941, was in production in just short of a year and within 18 months was at 115% of expected capacity.

Hammer made division head of construction firm

Appointment of E. Walter Hammer as manager of the Industrial and Building Construction Division of Merritt-Chapman & Scott Corp. was announced last week.

Hammer originally joined the organization in 1935 as project manager and, in the 10-year period following, directed construction of a wide range of industrial and building projects throughout the United States. Among them were: A hot and cold rolling strip mill at Pittsburgh, Pa., for the Jones & Laughlin Steel Corp.; and a ground wood newsprint mill at Lufkin, Tex., for the Southland Paper Mills, Inc.

In 1945 he joined Starrett Bros. & Eken as vice-president in charge of the company's construction operations in the eastern part of the United States, and served in that capacity until shortly before his return to Merritt-Chapman & Scott this year.

Veteran of 35 years in the construction industry, Hammer is a professional engineer, and a member of the Moles, an organization of contractors and engineers active in the heavy construction field.

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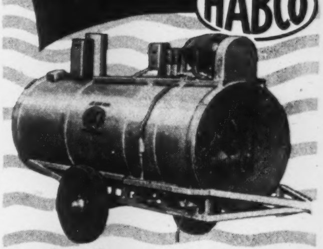
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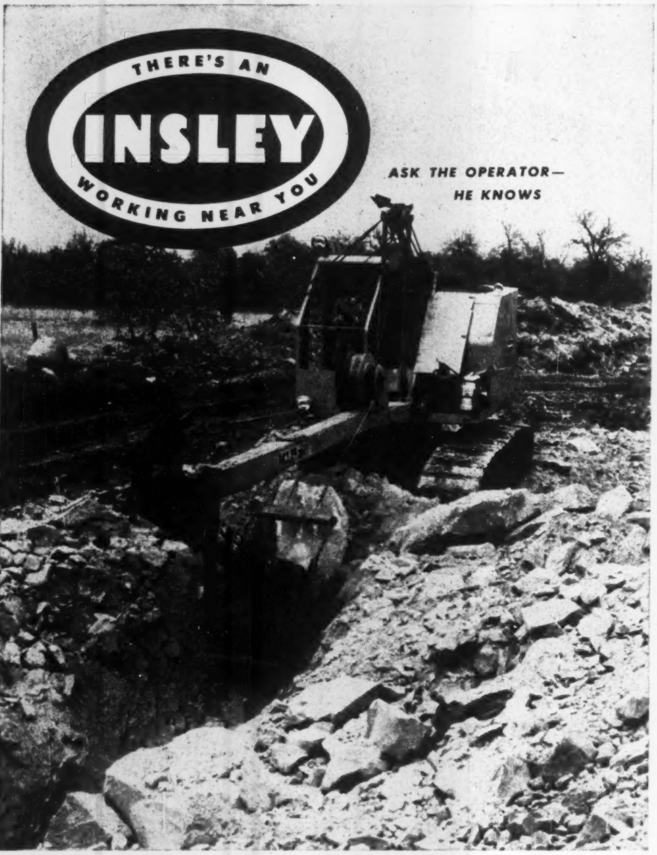

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that Insley Equipment can be rated-for-the-project . . . he knows that specification alternates make it possible to buy the exact equipment to do his job best.

INSLEY MANUFACTURING CORPORATION • INDIANAPOLIS 6, INDIANA

OBITUARIES

Rex D. Richardson, president and treasurer of the R. D. Richardson Construction Co., Scranton, Pa., died Oct. 6. He had been in the contracting business in the Scranton area for 40 years.

John C. White, 84, Madison, Wis., a practicing civil engineer from 1886 until he retired in March, 1944, died there Sept. 19. He was a former member and president of the Madison City Board of Water Commissioners and was also a former member of the Metropolitan Sewerage Commission at Madison.

Associate Civil Engineer Harold W. Morss, 64, of the N.Y. State Department of Public Works, died Oct. 3. He was a 1912 graduate of Union College, Schenectady, N.Y. All of his engineering career was with the state. For the last 20 years he held the position of chief draftsman in the Binghamton district.

A. J. McKenzie, Sr., founder and chairman of the board of McKenzie Construction of San Antonio, Tex., died Oct. 1. He was graduated from the University of Missouri with a civil engineering degree in 1907. McKenzie Construction Co. built several prominent San Antonio landmarks under McKenzie's guidance. Among these were the Transit Tower, Alamo National Bank Building, Plaza Hotel building, Southwestern Bell Telephone Co. building and the Travis building. His company also built Olmos Dam in San Antonio, Marshall Ford Dam at Austin and the Pan Tex ordnance plant at Amarillo, Tex.

Herman F. Brumm, 62, Hornell district engineer of the N. Y. State Department of Public Works, died at Pittsfield, Mass., Oct. 1. He had been with the department since 1912.

Deane N. Harding, 65, a civil engineer in the Massachusetts state highway division, died in Boston Aug. 13. He served with the U. S. Marines in World War I.

Charles B. McBride, 56, retired superintendent of highways of Chautauqua County, N. Y., died in Jamestown Oct. 3. He retired from the post in August after holding it since 1948. He was a graduate of the Universities of Missouri and Illinois. He went to Jamestown as an assistant engineer for the County Highway Department in 1924.

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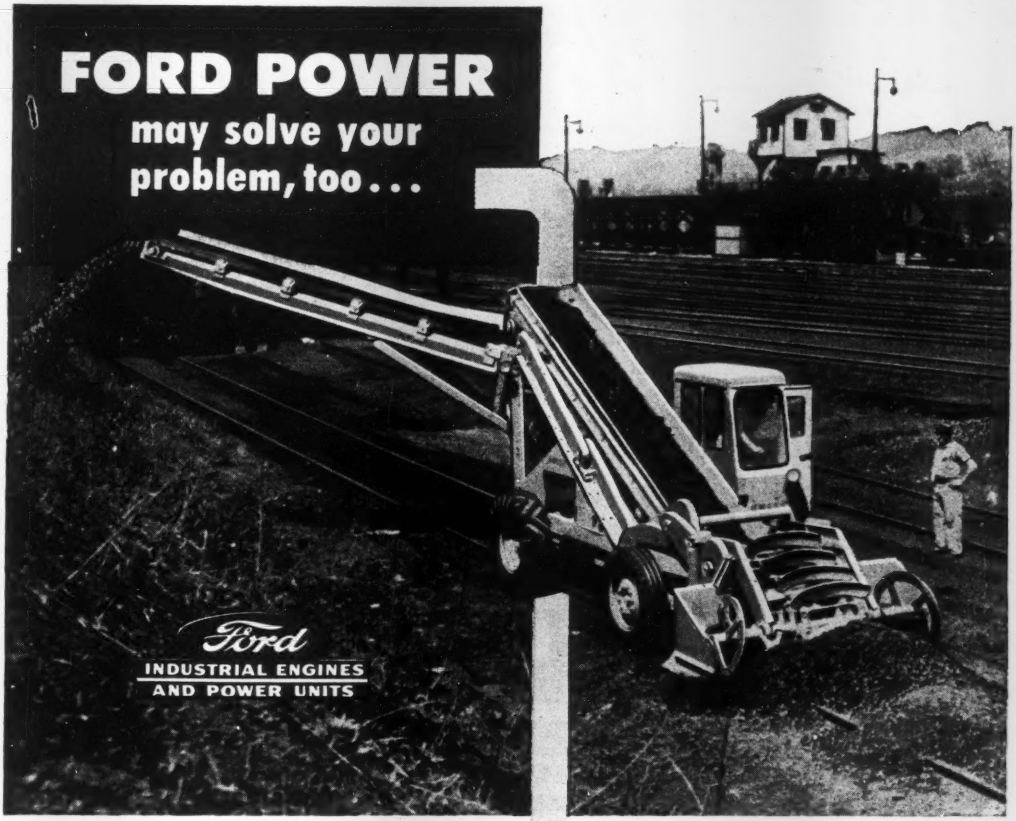
may solve your problem, too . . .



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INDUSTRIAL ENGINES
AND POWER UNITS

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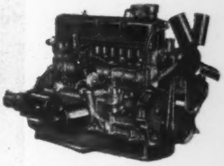
TYPICAL FORD-POWERED CONSTRUCTION APPLICATIONS:

Cranes ● Pumps ● Shovels ● Pavers
Concrete & Bituminous Spreaders ● Earth Boring Machines ● Air Compressors and many others

Specify Ford because . . .

YOUR JOB IS WELL-POWERED WHEN IT'S FORD-POWERED!

FORD "215" Industrial Engine



Here's the heavy-duty power plant specified by Athey Products Corp., Chicago, Ill., to operate their Force-Feed Hi-Loader used by railroads for track clean-up work as pictured above. Other Athey Force-Feed Loaders popular with road contractors, state and county highway departments are powered by the same dependable Ford Engines.

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SERVICE TO THE HIGHLY INDUSTRIALIZED GREAT LAKES REGION is the main purpose of Lock Joint's permanent manufacturing plant on the outskirts of Detroit. Specializing in pipe 24″ in diameter and larger for water supply lines, distribution feeder mains, cooling water or process water lines, subaqueous intakes and outfalls, the Detroit plant is ideally situated to serve such nearby industrial centers as Chicago, Cleveland, Gary, Akron and Toledo. Because of this convenient location, pipe from the Detroit plant can be economically shipped to other parts of the country, as well.

AUGMENTING THE DETROIT OPERATION are our three other modern permanent pipe manufacturing plants. Each of these plants is strategically located to serve the rest of the country East of the Rockies. The Wharton, N. J., plant covers the East; Columbia, S. C., the South; and Turner, Kansas, the Great Plains. No matter how large or small your contracts may be, if your pipe requirements are 16″ in diameter or larger, you can rest assured that the efficient and economical answer to your pipe problem can be supplied from one of these four Lock Joint Plants.

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LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

ELSIE EAVES, Manager
J. A. MAHONEY, Reports
M. R. ROESSLER, Statistics

NEW ENGLAND

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—State **Hy.** Comn., State House, Augusta,

J. R. Cianchette, 120 Main St., Pittsfield, Me. CA. **$425,783.** bit. macad. 3.85 mi. K-8, S.P. No. 995, Linneus, Hodgdon, Houlton;

Frank Rossi, 192 Water St., Gardiner, Mass. CA. **$279,534.** bit. grav. 4.737 mi. F.A. Secondary Proj. S 0237 (2), R.27, New Vineyard, and New Portland. Bids Oct. 8. CD 9/29.

▲† **Verrier Constr. Co.,** 65 Commercial St., Portland, Me. CA. **$5,210,300,** est. $3,250,000. aviation gasoline and jet fuel bulk storage, tank farm, Spec. 31260, HARPSWELL NECK, ME. First Naval Dist., 495 Summer St., Boston, Mass. CD 9/23, under LB.

† **U. S. Eng.,** 857 Commonwealth Ave., Boston 15, Mass. cancelled bids to have been opened about Sept. 3, parking apron and taxiway exten., refueling sys., grading crash strip, Limestone Air Force Base, Eng. 19-016-53-2, LIMESTONE, ME. CD 6/19.

† **Cyclone Fence Div. American Steel & Wire Corp.,** 360 Eastern Ave., Malden, Mass. LB. **$74,583.** lighting, guard tower, fencing, Presque Isle Air Force Base, Eng. 19-016-53-22, PRESQUE ISLE, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Oct. 10. CD 9/23.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Central Constr. Co., 228 Southampton St., Boston, Mass. CA. **$70,244,** est. $70,000. hy. work, Southampton St., Boston.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

American Constr. Co., Inc., 18 Oliver St., Boston, Mass. LB. **$69,538,** est. $60,000. pedestrian overpass Orient Heights Beach near Bennington St., East Boston. Bids Oct. 7. CD 9/24.

R. Zoppo, 842 Boston Providence Hy., Norwood, Mass. CA. **$48,760,** est. $50,000. Contr. 29A culvert for water mains, SPRINGFIELD, MASS. City, Bd. Water Comrs., City Hall, Springfield, Mass. Bids Sept. 17.

RHODE ISLAND—State Purch. Agent, State House, Providence,

Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Warwick, R. I. CA. **$152,625,** constr. Ives St. from Forge Rd. to Sandy Point, Contr. 5222, Warwick. Bids Sept. 24. CD 9/9.

RHODE ISLAND—State Purch Agent, State House, Providence,

M. A. Gammino Constr. Co., 728 Valley St., Providence, R. I. LB. **$104,168,** road constr., Harris Ave. and Eagle St., Cont. 5223, F.A. Proj. U-019, Providence Co.;

DiFusco & Mendillo, 2 Hill St., Webster, Mass., LB. **$84,534,** road constr., Diamond Hill Rd., Cont. 5227, Woonsocket. Bids Oct. 8. CD 9/24 and 10/3.

† **A T R Constr. Co., Inc.,** Connell Hy., Newport, R. I. LB. **$41,283,** water, sewers, electric etc. for Trailer Park, NOY 73831, Spec. 34867, NEWPORT, R. I. P. Wks. Dpt., Naval Base, Newport, R. I. Bids Oct. 7. CD 10/1.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Thomas O'Connor & Co., Inc.,** 238 Main St., Cambridge, Mass. CA. Est. **$3,200,000.** CHURCH and MONASTERY, 114 Arch St., BOSTON, MASS. St. Anthony's Shrine, c/o Father Harold B. Blake, 103 Arch St., Boston, Mass. Bids Sept. 26. CD 9/17.

† **National Constr. Co.,** 767 E. Third St., South Boston, Mass. LB. **$334,300,** est. $350,000. Proj. 1-4180, operating suite and clinic alterations, Veterans HOSPITAL, NORTHAMPTON, MASS. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Oct. 7. CD 9/8.

Wexler Constr. Co., 2 Elm Pl., Brookline, Mass. LB. **$438,425.** elementary SCHOOL, Main St and Cordaville Rd., SOUTHBORO, MASS. Town, School Dpt., Southboro, Mass. Bids Oct. 9. CD 9/23.

L. C. Blake, 50 Dyer Ave., Milton, Mass. LB. **$316,741.** Bicknell Junior High SCHOOL, North Weymouth, WEYMOUTH, MASS. Town, Bldg. Comn., Weymouth, Mass. Bids Oct. 9. CD 9/29.

R. L. Whipple Co., 44 Portland St., Worcester, Mass. CA. Approx. **$600,000.** CIVIL ENGINEERING BLDG., Salisbury and Boynton Sts., WORCESTER, MASS. Worcester Polytechnic Institute, Institute Rd., Worcester, Mass. Bids Oct. 1. CD 9/23.

Granger Constr. Co., Inc., 306 Main St., Worcester, Mass. LB. **$521,000.** elementary SCHOOL, Flagg St., WORCESTER, MASS. City, School Dpt., 32 Franklin St., Worcester, Mass. Bids Oct. 9. CD 10/3.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

N. Y., Helmuth—B.A. 10/30—Bureau Contracts & Accounts, Albany, addnl. water supply at Gowanda State Homeopathic Hospital. Plans deposit $20. CD 3/3/44.

† **Maryland—B.A.** 10/31—U. S. Eng., 24 St. and Maryland Ave., Baltimore, maintenance, imprv. dredging Brewerton-Fort. McHenry Angle and Fort McHenry Section, Baltimore Harbor, CIVENG 18-020-53-16. CD 9/24.

† **New York**—B.A. On Or About 11/11—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., furnishing, installing gate heaters at Almond Dam on Canacadea Creek in Steuben Co., approx. 3 mi. west of Hornell on State Hy. Rte. 36 and at East Sidney Dam on Ouleout Creek in Delaware Co. approx. 45 mi. northeast of Binghamton, approx. 4 mi. from Unadella on State Hy. Rte. No. 7B, Serial No. CIVENG 18-020-53-20. CD 12/29/43.

Pa., Bristol—B.A. 11/18—Bristol Boro, Bristol, sewage treatment plant alterations, addns. $589,770. William H. Boardman, 426 Walnut St., Phila., engr. CD 6/24, under LB.

† **N. J., Wrightstown**—CLEARING, etc.—B.A. On Or About 11/25—U. S. Eng, 121 N. Broad St., Phila. 1, Pa., clearing, rough grading and drainage for McGuire Air Force Base, Inv. No. ENG 36-109-53-141. CD 9/13/51.

Pa., Broomall—SWIMMING POOL—Bids Asked—White Manor Country Club, c/o Erwin Pincus, 1422 Chestnut St., Phila., swimming pool. $60,000.

(Continued on page 83)

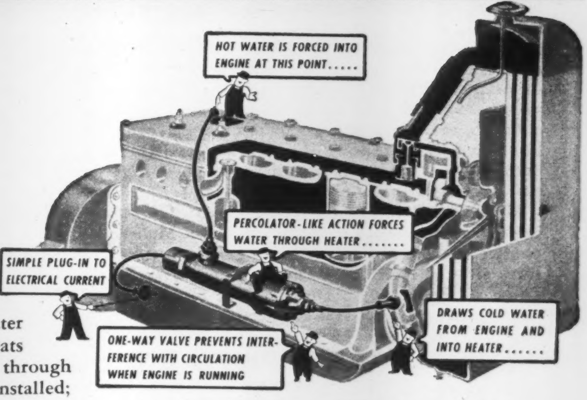
How to Lick Winter Damage to your Engines

KIM Hotstart

REG. U. S. PAT. OFF.

engine pre-heater

for gas and diesel engines


HOT WATER IS FORCED INTO ENGINE AT THIS POINT.....
PERCOLATOR-LIKE ACTION FORCES WATER THROUGH HEATER.......
SIMPLE PLUG-IN TO ELECTRICAL CURRENT
DRAWS COLD WATER FROM ENGINE AND INTO HEATER......
ONE-WAY VALVE PREVENTS INTERFERENCE WITH CIRCULATION WHEN ENGINE IS RUNNING

By keeping engines warm at night, KIM Hotstart eliminates cold starts, the cause of most winter repair bills. Along with quick, easy starting, KIM Hotstart does these important jobs:

Saves warm-up time
Reduces fuel consumption
Prolongs battery life
Eliminates necessity of heated terminals

KIM Hotstart is a lightweight electric pre-heater that is plugged into the electric circuit at night. It draws off cold water from the engine, heats it and circulates it through the engine. Easily installed; four sizes to fit any gas or diesel engine. Sold and installed by leading automotive suppliers. For detailed information, fill in and mail the coupon. KIM Hotstart Manufacturing Co., West 917 Broadway, Spokane 11, Washington.

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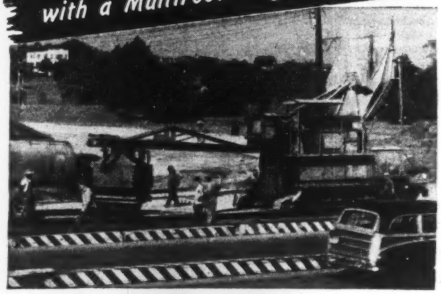
—the paver for *any* pouring job

LOOK at the picture above—one machine that can place itself in any location—no expense for purchase or operation of a hoisting mechanism—no extra cost for truck equipment—minimum operating crew! Here is pouring at low cost.

MultiFoote brings you the greatest combination for mixing and pouring concrete you can find anywhere. One unit with the MultiFoote HighLift Boom permits you to mix and pour three stories up and then by simply lowering the boom or with a simple change in booms where extra long HighLift Booms have been used, you are equipped for pouring slab at a speed that has seldom been equalled.

MultiFoote Pavers have established records for pouring slab at the rate of a mile a day. With the MultiFoote you are ready to bid on a wide range of contracts and three sizes of MultiFoote Pavers from a 27-E Single Drum to the big 34-E DuoMix care for practically any capacity problem. Ask for details.

FREE YOUR CRANE for other Work with a MultiFoote HighLift Boom



MultiFoote 34-E DuoMix getting out 50 batches an hour even with difficult traffic conditions impeding trucks.

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Subsidiary of Blaw-Knox Co.
1922 State Street Nunda, New York

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FOR EVERY PLACE CONCRETE MUST BE POURED

A BLAW-KNOX PRODUCT
FROM FORMS TO PAVER TO FINISHER... ALL YOUR PAVING EQUIPMENT IN ONE PACKAGE from BLAW-KNOX

(Continued from page 81

BIDS ASKED—BUILDINGS

▲ **Md., Annapolis** — HOSPITAL—B.A. 10/29—Anne Arundel General Hospital, Annapolis, 4 story, brick, rein.-con., Baldwin Wing hospital addn. $1,000,000, Jas. R. Edmunds Jr., 1025 St. Paul St., Baltimore, archt. CD 8/18.

▲ **Pa., Phila.**—HOUSING—B.A. 11/13—Phila. Housing Auth., 42 S. 15 St., Wilson Park Housing Development. $9,000,000. Extended date. W. Pope Barney & Roy W. Banwell, Girard Trust Bldg., Phila., archts. CD 10/3.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Oakhill Contg. Co., 74-20 Caldwell St., Maspeth, N. Y. LB **$315,146**, combined sewer and appurtenances to complete the abandoned contract in 56 Ave., 196 Pl., 58 Ave., 207 St., Horace Harding Blvd., const. high level combined sewer and appurtenances Horace Harding Blvd., north side, Queens Boro, NEW YORK. President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens 24, N. Y. Bids Oct. 9. CD 10/1.

▲ **Bethlehem Steel Corp.**, E 3 St., Bethlehem, Pa., CA **$10,620,971**, 46,275 tons cast iron and cast steel for tunnel segments of under-river section of Third Tube of Lincoln Tunnel, Contr. LT-160-001, NEW YORK. Port of New York Auth., 111 8th Ave., New York 11, N. Y. Bids Sept. 15. CD 8/26.

▲ **Cayuga Foundation Corp.**, 30 Vesey St., New York 7, N. Y. CA. **$1,336,800**. Contr. 415, piers and abutments of Shavertown Bridge in Town of Andes, bridge will cross valley of East Branch of Delaware River at point approx. 1 mi. east of village of Shavertown, NEW YORK, N. Y. Bd. Water Supoly, 120 Wall St., New York, N. Y. Bids Sept. 23. CD 10/3, under LB.

NEW JERSEY—New Jersey Turnpike Auth., Route S-28 and Turnpike, East Brunswick,

Union Bldg. & Construction Co., 631 Main Ave., Passaic, N. J., CA, **$443,187**, surf. tr. of road shoulders and repairs to shoulders from Deepwater to Morse's Creek, Contr. 92 various locations in 7 counties, CD 7/31/49.

McElwee & Courbis, 503 Market St., Camden, N. J., LB. **$169,000** general contract sewage treatment plant, EGG HARBOR, N. J. Egg Harbor City Council, Egg Harbor, N. J. Bids Sept. 25. CD 9/11.

† **P. Wks. Office**, U. S. Naval Academy, Annapolis, Md. rejected bids Sept. 9, transformer and switching station, U. S. Naval Radio Station, Spec. 31671, ANNAPOLIS, MD. CD 8/29.

Lacchi Constr. Co., 2023 Maryland Ave., Baltimore, Md. LB. **$297,847**, est. $350,000. concrete, steel, masonry small mammals bldg., Druid Hill Park, BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore, Md. Bids Oct. 8. CD 10/1.

B. & W. Constr. Co., 2 Riverside Rd., Towson, Md. LB **$61,245**. No. 5234-R, and No. 5285-R road paving and imprvs., various sections, TOWSON, MD. Comrs. Baltimore Co., Court House, Towson, Md. J. Fred Offutt, Court House, Towson, road engr.

Peter D'Adamo & Son, 2441 N. Charles St., Baltimore, Md. LB **$191.305**. Items 4, 5 and 3, Contr. 294-D, sewers, TOWSON, MD. Comrs. Baltimore Co., Court House, Towson, Md. Bids Oct. 3.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 2, N. Y. LB. **$1,883,000**, JUNIOR HIGH SCHOOL 285, north side of Beverly Rd. between Ralph Ave. and E. 59 St., BROOKLYN, N. Y. Co-ordinator of School Construction, 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Oct. 1. CD 9/24.

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 2, N. Y. LB. **$1,167,000**. SCHOOL P. S. 201, 155 and 156 Sts., 90 ft. south of 65 Ave., FLUSHING, N. Y. Co-ordinator of School Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Sept. 15. CD 9/11.

▲† **Grove, Shepherd, Wilson & Kruge, Inc., and Hendrickson Bros.**, 247 Park Ave., New York, N. Y. CA. **$13,604,000**, plant for assembly of jet plants in Calverton-Manorville-Wading River areas to be operated by Grumman Aircraft Eng. Corp., Bethpage, N. Y., RIVERHEAD, N. Y. Dpt. Navy, 18 St. and Constitution Ave., N.W., Wash. 25, D. C. CD 1/31.

Beverly Hills Development Co., Burlington, N. J. Separate Contracts, **$350,000** RESIDENTIAL DEVELOPMENT, EDGEWATER, N. J. William Dean Faint, 1915 Browning Rd., Pennsauken, N. J., archt.

Olden Development Corp., 1875 Olden Ave., Trenton, N. J. Separate Contracts, **$300,000** RESIDENTIAL DEVELOPMENT, S. Olden Ave., TRENTON, N. J.

▲ **Fred J. Brotherton**, 185 Atlantic St., Hackensack, N. J. CA. **$1,200,000** Tube PLANT Bldg. 66, and paving WOODBRIDGE, N. J. Radio Corp. of America, 415 S. 5 St., Harrison, N. J. Paul Kopf, 1321 Arch St., Phila., Pa., archt and engr.

Herman J. Friedman, 1111 Ansley Rd., Melrose Park, Pa., Separate Contracts. Approx. **$300,000**. RESIDENTIAL DEVELOPMENT, Forest Ave., etc. CHELTENHAM, PA. Barrett Pennell, 33 E. Wynnewood Rd., Wynnewood, Pa., archt.

Belfield Homes, Inc., 1422 Chestnut St., Phila., Pa., Separate Contracts. **$500,000**. RESIDENTIAL DEVELOPMENT, Belfield Ave., PHILA., PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

Gowen Williams Corp., 8501 Temple Rd., Phila., Pa., Separate Contracts. Approx. **$560,000**. APARTMENT DEVELOPMENT, Michoner St., etc., PHILA., PA.

Broadway Constr. Co., 3207 Brunswick Ave., Drexel Hill, Pa., Separate Contracts. Approx. **$350,000**. RESIDENTIAL DEVELOPMENT, N. Wind Dr. and Cambridge St., SPRINGFIELD, PA.

For Many Digging Jobs, *Only* the Sherman *Power* Digger is Practical

Get the most out of the excavating equipment you already own or rent by keeping it on your big volume jobs.

For miscellaneous excavating and trenching jobs the Sherman Power Digger is *fully capable* and *far less expensive to operate*. You can buy Digger and Tractor complete for less than many automobiles cost.

The Sherman Power Digger is the answer where giant digging equipment and manual labor are both uneconomical. It reaches 8 feet below ground surface and swings in an arc of 140° with a radius of 10 feet behind the tractor.

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Efficient performance of the Sherman Power Digger is assured by positive hydraulic action and patented actuated bucket.

The Sherman Power Digger is attached to a lightweight, rubber-tired tractor giving unmatched maneuverability and transportability.

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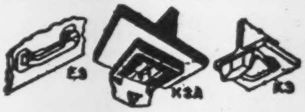

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Saxe Welding Connection Units position and secure structural parts to be welded.

Clip K3A permits an adjustable connection.

These widely used units eliminate all hole punching and, with welding, produce the most economical, safe and quickly erected structural frame.

Write for 1951 edition, Structural Welding Practice Manual.

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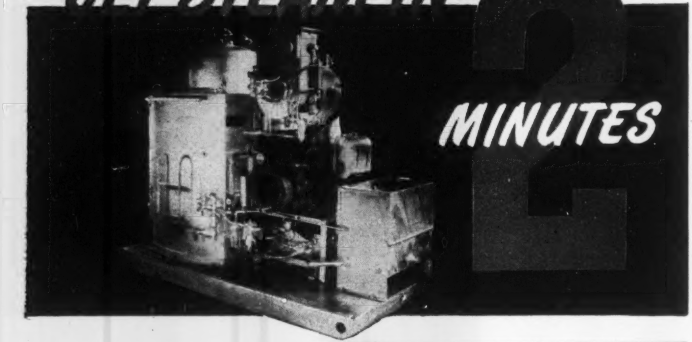
GET STEAM IN 2 MINUTES



READY-MIX CONCRETE PLANTS

WITH A LITTLEFORD "Kwik-Steam" VAPOR GENERATOR

Here's the fastest most modern steam producing unit ever designed. You get steam in 2 minutes time from a cold start and save as much as 50% in fuel and labor. No experienced operator is needed, no hard fuels, no starting hours ahead to get steam. Just start the "Kwik-Steam" Generator and the automatic controls take over. This amazing unit cycles off and on to produce steam only when needed. Burns low cost fuel oil. It's small, compact and made in sizes from 20 to 165 B.H.P. Can be used also for cleaning equipment, steaming aggregate cars, heating water. For Fast, Safe, Economical service, all Ready-Mix Concrete Plants should have a "Kwik-Steam" Generator. Write for Bulletin 22 for further details.

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Diamond and Shot Core Borings
Dry Sample Borings
Grout Holes and Pressure Grouting
Foundation Testing for Bridges, Dams and other Heavy Structures

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CONVERTS to PEA SHOOTER
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PROMPT DELIVERY
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MAYO TUNNEL & MINE EQUIPMENT LANCASTER, PA

Dominion Contractors, 2301 Maryland Ave., Baltimore, Md., LB **$578,489,** Mount Vernon Terrace HOUSING, WAYNESBORO, PA. Franklin County Housing Auth., Waynesboro, Pa. S. Kendrick Lichty, 830 Lancaster Ave., Bryn Mawr, Pa., archt. Bids Sept. 30.

† **P. Wks. Office**, U. S. Naval Academy, Annapolis, Md. rejected bids Sept. 4, altering BUILDING 77 for filter test facilities, U. S. Naval Engineering Experiment Station, Spec. 31670, ANNAPOLIS, MD. CD 8/27.

Roosevelt Building Corp., 731 Patapsco Ave., Baltimore, Md. Owner Builds, Est. **$364,000.** fifty-two 2 story, 16x31x28 ft. brick HOMES, 5500 block Dolores Ave., BALTIMORE, MD.

▲ **Piracci Constr. Co.**, 2552 Woodbrook Ave., Baltimore, Md. LB **$1,385,000.** Phase II remodeling 4 story, bsmnt., concrete COURT HOUSE, BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore, Md. Bids Oct. 8. CD 9/25.

▲† **John McShain, Inc.**, 3 W. Franklin St., Baltimore, Md. LB **$4,527,200.** Base Bid Item I;
Baltimore Contractors, Inc., 711 S. Central Ave., Baltimore, Md. LB **$7,049,000.** Base Bid Item II permanent TROOP SPACES and supporting facilities, eleven 3 story, 39x266 ft. barracks, 36x87 ft. mess hall wing, a 35x58 ft. kitchen wing, Eng. 18-020-53-12;
J. D. Hedin Constr. Co., 2900 Newton St. N.E., Wash., D. C. LB **$79,000.** Base Bid Item 2, installing utility extensions, steam, electric, water, gas, sanitary sewers, storm drains; LB **$184,000,** Base Bid Item 9, 1 story, bsmnt., 46x77 ft., rein.-con., steel, concrete block central heating plant;
Kramer-Davis Constr. Co., Ellicott City, Md. LB **$200,000.** Base Bid Item 3, three 1 story, 40x120 ft. Battalion Motor Repair Shops;
Baltimore Contractors, Inc., item 4, 711 S. Central Ave., more, Md. LB **$676,800,** Item 4, 200x503 ft. general purpose and REGIMENTAL WAREHOUSE with OFFICES, 28x41 ft. HEATING PLANT with 60 ft. brick stack, utilities, railroad, paving;
John K. Ruff, Inc., 100 W. 22 St., Baltimore, Md. LB **$117,300.** Base Bid Item 5, 1 story, 66x123 ft., concrete block, steel PAINT SHOP, boiler and storage rooms, stoker fired boiler;
Moyer Bros., 2605 Beale Ave., Altoona, Pa. LB **$117,231.** Base Bid Item 6, 1 story, 56x71 ft., 56x70 ft. wing, concrete block BAKERY addn., steam boiler; LB **$457,247,** Base Bid Item 7, 1 story, 63x294 ft., 34x90 ft., concrete block, rein.-con. GUARD HOUSE, with KITCHEN, OFFICES, CHAPEL; LB **$5.50** sq. yd. Base Bid Item 8, approx. 4,600 sq. yd. hardstand bit. surf. course, macad. base course grading, clearing, drainage structures; LB **$403,497.** Base Bid Item 10, constr. BACHELORS OFFICERS QUARTERS, FORT GEORGE, G. MEADE, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md. Bids Oct. 8. CD 9/15.

▲ **F. H. Martell Co., Inc.**, 1023 20 St. N.W., Wash., D. C. CA. Base Bid **$2,692,000,** Alternate No. 5 (minus $1,400) and Alternate No. 7 (minus $149,000). Wheaton Junior-Senior High SCHOOL, Wheaton, ROCKVILLE, Md. Montgomery Co., Bd. Educ., Rockville, Md. CD 9/25, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Tenn., Halls—GAS SYSTEM—B.A. 10/30—City, natural gas distr. sys. Approx. $200,000. Allen & Hoshall, 65 McCall Pl., Memphis, engrs.

† **Louisiana**—B.A. 11/4—U. S. Eng., P.O. Box 60, Vicksburg, Miss., Little Bayou Boeuf Channel imprv., Mile 14.53 to Mile 18.92 in Ouachita and Morehouse Parishes, approx. 6 mi. west of Collinston, CIVENG 22-052-53-34. CD 6/26/46.

† **Louisiana**—B.A. 11/6—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, 730,000 cu. yd. earthwork on Lake Pontchartrain Protection Levee, Inv. 53-59, Jefferson Parish. CD 6/26/46.

Miss., State College—B.A. 11/6—State Bldg., Comn., Woolfolk State Office Bldg., Jackson, sewerage disposal sys. $250,000.
Tenn., Columbia—B.A. 11/12—City, water filtration and treatment plant, raw water supply line and c.i., mains. Approx. $300,000. Plans deposit $50. Polk, Powell & Hendon, Stallings Bldg., Birmingham, Ala., engrs. CD 11/29/51.

† **Miss., Biloxi**—TRAINING BLDG., etc.—B.A. On Or About 11/25—U. S. Eng., P.O. Bldg., P.O. Box 1169, Mobile, Ala., training bldg. and sub-tower, Keesler Air Force Base, Eng. 01-076-53-25. Plans deposit $25. CD 2/7/52.
Ga., Decatur—SCHOOL—B.A. 10/28—De Kalb Co. Bd. Educ., Decatur, Candler-McAfee School, $350,000. Bothwell & Nash, 208 Roswell St., Marietta, archts. CD 9/22.
Miss., Newton—HOSPITAL—B.A. 10/30—Newton Co., hospital, $300,000. Plans deposit $50. L. L. Brasfield, Box 1065, Meridian, archt. CD 8/15/49.
Ky., Owensboro—ADMINISTRATION—B.A. 11/5—Kentucky Wesleyan College, Owensboro, 5 story administration bldg., incl. classrooms, library, and laboratories, 2 story student union bldg. Poundstone, Ayers & Goodwin, Bona Allen Bldg., Atlanta, Ga., and Roberts & Marshall and Max Bisson, Owensboro, archts. CD 4/7/52.

La., Verda—SCHOOL—B.A. 11/6—Grant Parish School Bd., Colfax, elementary school, $300,000. Plans deposit $25. Barron, Heinberg & Brocato, 1015 Wisteria St., Alexandria, archts.

N. C., Eagle Springs—DORMITORIES, etc.—B.A. 11/6—State Bd. Correction & Training, State Capitol, Raleigh, 2 dormitories, infirmary, shop, laundry, utility bldg. sewers, WW, etc. at State Training School. Approx. $500,000. Plans deposit $25. J. N. Pease & Co., 119½ E. 5 St., Charlotte, archts. CD 12/7/50, under LB.

▲ La., Bossier City—HOUSING—B.A. 11/12—Bossier City Housing Auth., Bossier Bank Bldg., 134 housing units, $1,000,000. CD 4/15/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

A. G. Pinkston, 1805 County St., Portsmouth, Va., LB **$43,244,** lowering 14,163 ft. 12 in. c.i. water main, NEWPORT NEWS, VA. Newport News Water Works Comn., City Hall, Newport News, Va. Bids Oct. 2. CD 9/18.

C. S. Hornbuckle Co., Decatur, Ga., CA **$35,000,** water mains from Clarkston to Avendale, DECATUR, GA. DeKalb Co., Court House, Decatur, Ga. CD 4/14.

Searcy B. Slack, Decatur, Ga., CA, **$157,400,** water filter plant adn., DECATUR, GA. Bd. Comrs., De Kalb Co. Court House, Decatur, Ga. Bids Sept. 11. CD 4/14.

J. W. Meadors & Co., Box 6353, Jacksonville, Fla., CA, **$595,833,** sanitary sewerage imprvs, GRIFFIN, GA. City, Griffin, Ga. Bids Sept. 23. CD 9/30, under LB.

▲ **FLORIDA** State Road Dpt., Miami,

Cone Bros. Constr. Co., Caesar and Cumberland Rds., Tampa, Fla., LB, **$152,981,** grading, paving State Rd. S-595 A, Job 1557-150, Pinellas Co.; LB **$75,227,** paving State Road S-587, Job 1063-150, Hillsborough Co.;

W. L. Cobb Constr. Co., 1102 N. 22 St., Tampa, Fla., LB, **$100,703,** paving State Rd. S-806, Job 9355-102 Palm Beach Co.;

Caddell & Jackson, 2014 Dennis St., Jacksonville, Fla., LB, **$69,050,** grading, paving Roads S-111 and S-105 Job 7271-151 and 7283-150, Duval Co.;

Macasphalt Corp., Lakeland, Fla., LB, **$84,572,** surf. State Rds. S-523, S-534 and S-525, Job 9252-153, 9254-151, 9255-150 and 9255-151, Osceola Co.;

Doyle Pope, Panama City, Fla., LB, **$255,027,** grading, paving, drainage structures 9.156 mi. Job 4657-150, Bay Co.;

Langston Constr. Co., Orlando, Fla., LB, **$204,278,** grading, stabilizing, paving, small drainage structures State Rd. 25, Job 3201-204, FI 002-3 (3), Hamilton Co.;

A. F. Rich Co., Monroe and Pershing Sts., Tallahassee Fla., LB, **$140,002,** grading, paving, small drainage structures State Rd. 10 FK-006-2 (5), Washington Co.;

Brinson Constr. Co., 51 St. and E. Broadway Ave., Tampa, Fla., LB, **$104,948,** regrading, paving State Rds. S-335 and 55, S-7 (6), Levy Co.;

H. E. Wolfe Constr. Co., St. Augustine, Fla., LB, **$344,263** grading, stabilizing, drainage structures State Rd. 25, Job 1104-203 F 019-3 (8), Lake Co. Bids Oct. 3. CD 9/26.

Santa Fe Telephone Co., Melrose, Fla., Owner Builds **$250,000,** telephone lines, MELROSE, FLA.

Trieste Constr. Co., Delray Beach, Fla., LB, **$68,947.** water softening plant addn., SARASOTA, FLA. City, City Hall, Sarasota, Fla. Bids Oct. 3. CD 12/2/49.

Mississippi Power & Light Co., 144 S. Congress St., Jackson, Miss. Owner Builds, Est. **$100,000.** 115 KV electric power transmission line across Big Sunflower River, Vicksburg, MISSISSIPPI.

Newsom Bros., Columbia, Miss. CA **$62,000.** Bridges on county road between Money and Sandy Springs, GREENWOOD, MISS. Bd. Supervs. Leflore Co., Greenwood, Miss. Bids Oct. 3. CD 9/22.

W. R. Mitchell, Prichard, Ala. LB **$151,521.** sanitary sewer imprvs., LUCEDALE, MISS. Town, Lucedale, Miss. Bids Oct. 7. CD 9/10.

Paul Anthony Constr. Co., Tupelo, Miss. CA **$118,411.** 2.631 mi. approaches and bridges on county road between Winona and French Camp, WINONA, MISS. Bd. Supervs. Montgomery Co., Winona, Miss. Bids Sept. 26. CD 9/15.

Henry Bickel Co., 1020 E. Chestnut St., Louisville, Ky. CA **$213,586.** imprv. Lexington Rd., LOUISVILLE, KY. City, Bd. P. Wks., City Hall, Sixth and Jefferson Sts., Louisville, Ky. Bids Oct. 7. CD 6/1/51.

Peoples Rural Telephone Co-operative, McKee, Ky. Owner Builds Est. **$150,000.** telephone lines, MC KEE, KY.

R. L. Bernardo, 1085 Forrest St., Memphis, Tenn. CA **$68,866,** Nonconnah Sanitary Sewer Line from Dunn to Alcy, MEMPHIS, TENN. City, City Hall, Memphis, Tenn. Bids Sept. 23.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **T. A. Loving & Co.,** Bank of Wayne Bldg., Goldsboro, N. C. CA. **$1,149,485,** 210 HOUSING units, GOLDSBORO, N. C. Goldsboro Housing Auth., Goldsboro, N. C. Bids Oct. 7.

Newton Homes, Inc., Hy. 70, New Bern, N. C. Owner Builds. **$450,000.** 50 RESIDENCES, NEW BERN, N. C.

W. H. Weaver, Greensboro, N. C. CA. Approx. **$400,000.** 50 RESIDENCES, NEW BERN, N. C. Neuse Homes, Inc c/o contractor.

Gary Martin, Spartanburg, S. C. CA. Approx. **$90,000.** AUTO SALES and SERVICE BLDG., SPARTANBURG, S. C. E. Gaines, c/o contractor.

Hodges Constr. Co., 518 Roosevelt Ave., Albany, Ga., CA, **$100,000,** carpet PLANT, ALBANY, GA. A. & M. Karagheusian, c/o contractor.

A. H. Constr. Co., 275 E. Pace Ferry Rd. N.E., Atlanta, Ga., Owner Builds, **$350,000,** 50 RESIDENCES, ATLANTA, GA.

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bldg. sewers, WW, etc. at State Training School. Approx. $500,000. Plans deposit $25. J. N. Pease & Co., 119½ E. 5 St., Charlotte, archts. CD 12/7/50, under LB.

Daniel Constr. Co., 429 Main St., Greenville, S. C., CA, **$655,000**, Murphy Junior High SCHOOL, AUGUSTA, GA. Richmond Co. Bd. Educ., Court House, Augusta, Ga. Bids Oct. 2. CD 9/22, under LB.

Knox Corp., Thomson, Ga., Owner Builds, **$500,000**. 61 RESIDENCES, AUGUSTA, GA.

Al Remler, c/o Thomas & Hutton, engrs., 20 Bay St., Savannah, Ga., Owner Builds, **$500,000**, SHOPPING CENTER, SAVANNAH, GA.

Jack Culpepper, Box 666, Tallahassee, Fla., LB, **$627,000**, CLASSROOM BLDG. for School of Business Administration, GAINESVILLE, FLA. State Bd. Control, Gainesville, Fla. Bids Oct. 7. CD 9/17.

Angus W. Graham, Inc., 71 N.E. 21 St., Miami, Fla., LB, **$120,625**, WAREHOUSE, MIAMI, FLA. Super Service Sales, Inc., c/o Jules P. Channing, engr., 3101 Bascayne Blvd., Miami, Fla. CD 10/10.

† **T. H. Pearce & Co.**, P.O. Box 1293, Columbus, Ga., CA **$773,476**, missile assembly SHOP, Redstone Arsenal Inv. 53-9, HUNTSVILLE, ALA. U.S. Eng., P.O. Box 1169, Mobile, 7, Ala. Bids Aug. 27, awarded Oct 7. CD 10/2, under LB.

▲† **Shelby Constr. Co.**, 1106 Canal St., New Orleans, La., LB, **$4,487,033**, facilities for Chemical Corps Training Command, ENG 01-076-52-72, FORT Mc CLELLAND, ALA. U.S. Eng., P.O. Box 1169, Mobile 7, Ala. Bids June 12. CD 5/2.

Day Constr. Co., Grenada, Miss. CA **$181,428**. FACTORY, WINONA, MISS. Montgomery Co., Winona, Miss. Bids Sept. 26. CD 9/10.

J M. King, 3552 Plank Rd., Baton Rouge, La. CA Est. **$375,000**. CHURCH, BATON ROUGE, LA. Weller Avenue Baptist Church, 3046 Weller Ave., Baton Rouge, La. Bids Sept. 11. CD 8/28.

Tolmas Constr. Co., Metairie Lawn, Dr., Gretna, La. Owner Builds, Est. **$400,000**. 44 RESIDENCES, GRETNA, LA.

E. B. Ludwig Constr. Co., 1350 Jefferson Hy., New Orleans, La. CA Est. **$150,000**. WAREHOUSE, NEW ORLEANS, LA. Southern Ford Tractor Corp., 900 Jefferson Hy., New Orleans, La. CD 10/1.

Green & Gust Co., 1635 Grace St., Chicago, Ill. LB **$580,600**. 110 temporary DWELLING units Defense Housing Proj. Ky1.D1, CAMP BRECKENRIDGE, KY. Public Housing Admin., Housing & Home Finance Agency, 900 N. Lombardy St., Richmond, Va. Bids Oct. 3. CD 9/22.

Ben P. Eubank Lumber Co., 611 E. Third St., Lexington, Ky. CA **$787,125**. General contract completing HOSPITAL, LEXINGTON, KY. Central Baptist Hospital, 17 and S. Lime Sts., Lexington, Ky., Frankel & Curtis, Central Bank Bldg., Lexington, Ky., archts. Bids Oct. 2, awarded Oct. 7.

MIDDLE WEST

BIDS ASKED—BUILDINGS

▲ **Wis., Milwaukee**—COMMUNITY CENTER—B.A. 11/12—Jewish Community Center, 1400 N. Prospect St., Zone 2, 2 story, bsmnt., sub-bsmnt., 150x225 ft., steel, brick, stone community center, $1,300,000. Plans deposit $50. M. W. Meyers & Assocs., 424 E. Wells St., Zone 2, archts. CD 1/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Ohio Power Co.**, 301 Cleveland Ave. S.W., Canton, O. and **Central Ohio Light & Power Co. (East Div.)** Findlay, O. Own Forces. **$1,005,900**, 29 mi. 132,000 volt transmission line from Canton to Wooster, with 25,000 kva sub-station at Wooster, addnl. equipment at Torry Station, OHIO.

▲ **National Engineering & Contg. Co.**, W. 4th and Central Aves., Cleveland, O., LB. Total Cost **$2,580,000**, substructure for reconstructing Big Four Bridge No. 2 over Cuyahoga River, CLEVELAND, O. New York Central System, F. H. Simpson, ch. engr., 325 S. LaSalle St. Station, Chicago 5, Ill. Bids Sept. 16. CD 8/18.

▲† **Herkner Constr. Co.**, 5450 Hamilton St., Cleveland, O., LB. **$2,287,392**, est. $2,955,874, operational apron paving for parking airplanes, 304,000 sq. yd. parking area, one ft. thick concrete, COLUMBUS, O. U. S. Eng., 237 Fourth Ave., Huntington, W. Va. Bids Oct. 10. CD 9/23.

▲ **B. & M. Constr. Corp.**, 218 N. Robinson St., Oklahoma City, Okla., CA. **$1,450,000**, gas distr. sys., CAIRO, ILL. City, City Hall, Cairo, Ill. Bids Sept. 29, awarded Oct. 1. CD 9/8.

Union Contg. & Eng. Co., 30 N. La Salle St., Chicago, 2, Ill., LB. **$107,412**, resurfacing S. Stoney Island Ave. from 56 to 69 Pl., LB. **$61,309**, resurf. South Lake Park Ave. from 47 to 56 Sts., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Sept. 30.

Eastman Constr. Co., 7307 S. Carpenter St., Chicago, Ill., LB. **$115,119**, sewage treatment works, NOKOMIS, ILL. City, City Hall, Nokomis, Ill. Bids Sept. 29. CD 9/8.

Fitzsimmons & O'Connell, Dredge & Dock Co., 122 S. Michigan Ave., Chicago, 3, Ill., CA. **$66,685**. Calloway Bridge, State Route 37, PEORIA, ILL. Peoria Co., Court House, Peoria, Ill. Bids Sept. 25, awarded Sept. 29.

† **Jesse H. Freeman**, 1608½ 5 Ave., Moline, Ill., LB. **$234,260**, paving, Chanute Air Force Base, RANTOUL, ILL. U. S. Eng., 475 Merchandise Mart, Chicago, 54, Ill. Bids Sept. 16. CD 9/11.

† **O. G. Kelley & Co.**, 12314 Elmwood St., Cleveland, O., CA. **$159,594**, installing, repairing lead work at Badger Ordnance Works, ENG. 47-013-53-9, BARABOO, WIS. U. S. Eng., Badger Ordnance Works, Baraboo, Wis. Bids Sept. 4.

† **Sprinkmann Sons Corp.**, 418 N. 2 St., Milwaukee, 3, Wis., CA. **$218,972**, insulation and rehabilitation vessels, ducts, piping and etc., Badger Ordnance Works, Eng. 47-013-53-11, BARABOO, WIS. U. S. Eng., Badger Ordnance Works, Baraboo, Wis. Bids Sept. 23.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **H. K. Ferguson Co.**, 1783 E. 11 St., Cleveland 14, O. CA. Total est. **$8,000,000**. 40 unit SHOPPING CENTER, Center Ridge Rd. and W. 210 St., FAIRVIEW PARK, O. Westgate Center, Inc., 1010 Euclid Ave., Cleveland, 14, O. CD 7/16.

▲ **Hagerman Constr. Corp.**, 403 Strauss Bldg., Fort Wayne, Ind., LB. **$4,268,884**, WOMEN STUDENT UNION BLDG., BLOOMINGTON, IND. Indiana University Bd. Trustees, Administration Bldg., Bloomington, Ind. Bids Oct. 2. CD 8/26.

Campbell Lowrie Lautermilch, 400 W. Madison St., Chicago, 6, Ill., CA. **$287,000**, FACTORY addn., CHICAGO, ILL. Perkins Products Co., 7400 S. Rockwell St., Chicago, Ill. Lundstrum & Skubic, Inc., 53 W. Jackson Blvd., Chicago, 4, Ill., engrs. Awarded Oct. 2.

▲ **Cornell & Fornell, Inc.**, 464 Northwest Highway, Des Plaines, Ill., Separate Contracts;

Wm. Goettsche, 38 N. Broadway, Des Plaines, Ill., CA, masonry work, 100 HOMES, DES PLAINES, ILL. Total est. **$1,200,000**. A. J. Del Bianco, 5501 W. Irving Park Ave., Chicago, Ill., archt. Awarded Sept. 25.

▲ **C. R. Meyer & Sons Co.**, 50 State St., Oshkosh, Wis., CA, Total est. **$13,400,000**. substructure for Weston Steam POWER PLANT, on Wisconsin River 2 mi. south of Rothschild, Marathon Co., GREEN BAY, WIS. Wisconsin Public Service Corp., Green Bay, Wis. Pioneer Service & Eng. Co., 231 S. La Salle St., Chicago, Ill., engr. CD 9/19/51.

▲ **Sears, Roebuck & Co.**, 925 S. Homan Ave., Chicago, Ill., cancelled bids to have been opened Sept. 23, 2 story, part bsmnt., 90x225 ft. STORE, MADISON, WIS. Est. **$1,484,000**. Project postponed. CD 9/10.

Paul Constr. Co., c/o owner, CA, **$300,000**. 4 story, 95x136 ft., rein.-con., brick 48 unit APARTMENT, 6 STORES and 6 OFFICES, MILWAUKEE, WIS. Ambassador Corp., 952 N. 12 St., Milwaukee, 3, Wis. John Topzant, 8320 W. Blue Mound Rd., Milwaukee 13, Wis., archt.

Garling Constr. Co., 6922 N. Telegraph Rd., Dearborn, Mich. Owner Builds. Est. **$800,000**. 75 brick ranch type HOMES, Greenfield Rd., East Dearborn, DEARBORN, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Missouri**—B.A. 10/28—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., restoration toe and bank protection Central Industrial Dist., Kansas City Flood Control Proj., Jackson Co., CIVENG 23-028-53-79. CD 6/1/44.

† **Kansas**—B.A. 10/29—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo., Prospect Park (Osage Ave.) Pumping Plant, Armourdale Unit, Kansas City Flood Control Proj., outlet thru levee, Kansas City Wyandotte Co., CIVENG 23-028-53-70. Extended date. CD 9/26.

† **Kansas**—B.A. 10/30—U. S. Eng., P. O. Box 61, Tulsa, Okla., relocating Midland Valley R. R., Big Slough-Cowskin Floodway (2nd Contr.) 6 mi. south of Wichita, Sedgwick Co., CIVENG 34-066-53-23.

† **Mo., Grandview** — ALERT HANGAR — B.A. 10/31 — U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., alert hangar, Grandview Air Force Base, ENG 23-028-53-22. CD 1/15/52.

† **Kan., Wichita**—HOUSING—B.A. 11/5—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., family housing 5 units, Wichita Air Force Base. CD 5/19/52.

† **Neb., Lincoln**—HANGARS, etc.—B.A. 11/6—U. S. Eng., 1709 Jackson St., Omaha, rehabilitation of hangars and buildings at Lincoln Air Force Base, Inv. 25-066-53-55. CD 7/14, under LB.

† **Kan., Wichita**—B.A. 11/19—B. O. Q., DORMITORIES, etc.—B.A. 11/19—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., Group E Bldgs., B. O. Q., 2 service dormitories, communication facilities, ration breakdown bldg., Wichita Air Force Base. CD 5/19/52.

† **South Dakota**—B.A. 11/25—U. S. Eng., 1709 Jackson St., Omaha, Neb., installing governors for Gavin Point Reservoir Project, near Yankton, Inv. 25-066-53-125. CD 6/1/44.

BIDS ASKED—BUILDINGS

Tex., Corpus Christi—PLANT—B.A. 10/30—Southern Minerals Corp., Maston Mixon, pres., 411 N. Broadway, 3 story, bsmnt., terra cotta over brick, steel building, air-conditioning, etc. $800,000. Plans deposit $35. Wyatt C. Hedrick Co., 1005 First Natl. Bank Bldg., Fort Worth, archt.

† **N. M., Albuquerque**—BUILDING—B.A. 11/14—U. S. Atomic Energy Comn., Box 5900, 80,000 sq. ft. Bldg. 880 addn., Inv. No. 293-53-18. $950,000. CD 10/7.

▲ **Ia., Waterloo**—SCHOOL—B.A. About 11/29—Bd. Educ., Waterloo, Senior High School $1,000,000. M. B. Cleveland, Waterloo, archt. CD 7/11/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Winn-Senter Constr. Co.**, Railway Exchange Bldg., Kansas City, Mo. CA **$150,711**. warehouse and navigation aids, Grandview Air Force Base, Eng. 23-028-52-69, GRANDVIEW, MO. U. S. Eng., 601 David-

(Continued on page 88)

The Gradall works easily in many a tight spot!

WHEN YOUR CONSTRUCTION WORK must be done in "tight" places such as this, there's one machine you can count on to do the job quickly—the Gradall.

Its "arm-action" boom actually reaches out, twists and turns, to do its work in areas very little larger than the machine itself. And the Gradall's powerful hydraulic "down pressure" and exacting tool control make it easy to dig excavations to blueprint specifications—with clean-cut vertical or sloping sides, precise square corners, and perfectly graded floors. It practically eliminates costly hand labor.

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JACKSON ELECTRIC FLEXIBLE-SHAFT CONCRETE VIBRATOR

MODEL FS-150A

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POWER GALORE: 2½ HP (continuous duty rating) Universal Motor provides more than ample power for uninterrupted placing of the stiffest mixes using the maximum length of shaft.

LIGHT SOCKET OPERATION: Wherever either 115 volt, 60 cycle single phase AC or Direct Current is available, this relatively inexpensive vibrator will do a bang-up job of concrete placement.

28 FOOT REACH: Available with any length of shaft up to 28 feet. Maximum length makes hard-to-get-to places readily accessible — saves time by making frequent changes of vibrator location.

CONVENIENT — RUGGED CONSTRUCTION: Double grip, skid-base handle with finger-tip control switch. Weighs only 50 lbs. Finest, smooth-running flexible shaft and fittings — built to take the most severe usage.

GRINDING: Countershaft attachment for quick conversion to wet or dry concrete rubbing.

HIGH FREQUENCY — 3 VIBRATOR HEADS: 8,000 to 10,000 VPM and availability of three vibrator heads assure rapid as well as thorough consolidation of the stiffest mix concrete under all conditions.

See this outstanding general-purpose electric vibrator at your Jackson Distributor or write for complete facts.

ELECTRIC TAMPER & EQUIPMENT CO.

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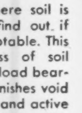

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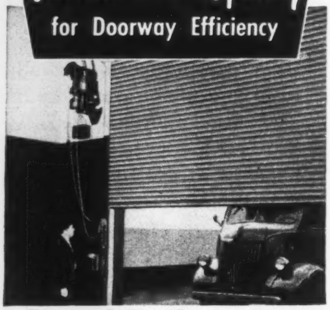

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ROLLING DOORS

(Continued from page 86)

son Bldg., Kansas City, 8, Mo. Burns & McDonnell Eng. Co., 95 and Troost Sts., Kansas City, Mo., engr. CD 1/15/52.

Chas. Hulme Drilling Contractor, Cork Bldg., Great Bend, Kan. LB 4 bridges over Little Cheyenne Creek, near GREAT BEND, KAN. State Forestry, Fish & Game Comm., c/o Dave Leahy, dir., Pratt, Kan. Bids Sept. 26. CD 9/17.

† **Triple H. Constr. Co.,** Linton, Ind., LB **$468,145,** est. $580,446, construction of Oahe-Midland 115-kv transmission line, Missouri River Basin Proj., transmission div., Spec. DC-3781, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Huron, S. D. Bids Oct. 2. CD 9/17.

† **Hardie-Tynes Mfg. Co.,** 800 N. 28 St., Birmingham, Ala. CA **$36,223.** two 4x5 ft. high pressure gates, with two 110,000 lb. hydraulic hoists, 3 conduit lining transitions, hydraulic, semi-automatic gate hanger, switch, 3 eyebolts for canal outlet works at Kirwin Dam, Missouri River Basin, Proj. Spec. DS 3775, KANSAS. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. bids Sept. 11. 8/15.

▲† **George Bennett Constr. Co.,** 1520 Central St., Kansas City, Kan. CA **$2,234,604.** (first stage) Tuttle Creek Dam across Blue River, near Manhattan, partial excav. of spillway, portion of outlet works conduit, constr. bridge, initial fill, KANSAS. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. CD 9/19, under LB.

▲ **OKLAHOMA**—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,

Moore Bridge Co., Ada, Okla., CA. **$269,633,** est. $307,227, seven bridges on Hy. 47 in Roger Mills Co. Bids Oct. 7, awarded Oct. 8. CD 9/30.

▲ **OKLAHOMA**—State Hy. Dpt., Capitol, Oklahoma City, Zone 5,

Oklahoma Constr. Co., Barnes Bldg., Muskogee, Okla., CA **$144,470,** est. $173,099, 7.69 mi. roadbed on No. 47, Rogers Mills Co.;

Park Ward Co., 711 N. W. 38 St., Oklahoma City 6, Okla. CA **$162,522,** est. $190,238, stabil. base, double bit. 7.69 mi., Roger Mills Co.; CA **$195,500,** est. $217,370, stabil. base, double bit. 6.6 mi. on No. 54, Custer Co.; CA **$144,664,** est. $166,245, stabil. base, bit. surf. 8.5 mi. on No. 8, Major Co.;

S. E. Evans, Fort Smith, Ark, CA **$95,137,** est. $120,778. roadbed 2.83 mi. on No. 51, east of Coweta, Wagoner Co.;

W. E. Logan & Sons, Barnes Bldg., Muskogee, Okla., CA **$351,033,** est. $384,384, roadbed 6 mi. on No. 10, Cherokee Co.;

Public Constr. Co., Manhattan Bldg., Muskogee, Okla. CA **$163,482,** est. $164,333, 6.98 mi. double bit. on No. 10, Cherokee Co. Grand total, $1,256,809. Bids Oct. 7, awarded Oct. 8. CD 9/30.

Brewer & McMichael, Holdenville, Okla., CA **$117,845,** est. $128,000. sewage disposal plant, HOLDENVILLE, OKLA. City, Holdenville, Okla. Bids Oct. 7, awarded Oct. 8. CD 9/29.

B & M Constr. Corp., Petroleum Bldg., Oklahoma City 2, Okla., LB **$224,080,** est. $299,170, sanitary sewer Contr. No. 10, OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City, Okla., Benham Eng. Co., American Natl. Bldg., Oklahoma City, Okla., engr.

† **Bauer Smith Dredging Co.,** Port Lavaca, Tex., LB **$201,604,** est. $350,000. dredging Colorado River Flood Discharge Channel between Mad Island Bayou and Port O'Connor, 1,040,000 cu. yd. material, Inv. No. CIVENG 41-243-53-19, Calhoun and Matagorda Counties, TEXAS. U. S. Eng., 606 Santa Fe Bldg. Galveston, Tex. Bids Oct. 7. CD 9/30.

Trunkline Gas Co., 2332 W. Holcombe St., Houston, Tex. Own Forces. **$310,000.** gas booster sub-station; **$75,000,** gas gathering lines, Goliad Area, Goliad Co., TEXAS. CD 10/3.

City, Gladewater, Tex., Purchases, Day Labor. **$65,000.** sewage treatment plant unit, GLADEWATER, TEX. Joe E. Ward, 545 Oil & Gas Bldg., Wichita Falls, Tex., engr.

Ray A. Conway, 277 Addax St., San Antonio, Tex., Purchase and Hire. **$60,000,** sanitary sewers;

Colglazier & Hoff, Seguin Rd., San Antonio, Tex., CA **$61,150,** storm sewers, SAN ANTONIO, TEX. CD 9/24.

Colglazier & Hoff, Seguin Rd., San Antonio, Tex., CA **$66,145,** street constr., paving, concrete curbs and gutters, SAN ANTONIO, TEX. Ray A. Conway, 277 Addax St., San Antonio, Tex.

Ray A. Conway, 277 Addax St., San Antonio, Tex. Own Forces. Approx. **$60,000,** gas lines and sys. SAN ANTONIO, TEX.

† **O'Neil Constr. Co.,** Havre, Mont. CA **$42,145,** est. $92,665. Missouri-Souris division, excav. for Missouri Diversion Dam foundation, Missouri River Basn Proj., Spec. DC 3769, MONTANA. Bureau Reclamation, Dpt., Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. CD 9/23, under LB.

† **Sharrock & Pursel,** Casper, Wyo., CA, **$53,062,** est. $51,512, earthwork, structures, Cottonwood drain Station 83 plus 50 to 304 plus 70.8 Wyoming canal lateral system Riverton Proj., Spec. DC 3779. WYOMING Bureau Reclamation, Dpt. Interior, Riverton, Wyo. Bids Sept. 18, awarded Sept. 26. CD 10/3, under LB.

COLORADO—State Hy. Dpt., 518 State Office Bldg, Denver,

Siegrist Constr. Co., 700 York St., Denver, Colo., LB, **$125,548,** est. $119,912, grading, structures, repairing bit. and grav. surf. 21.39 mi. beginning east of Lowry Field and extending easterly and southerly to Douglas Co. line, Arapahoe Co. Bids Oct. 7.

Hoak Constr. Co., 621 63 St., Des Moines, Ia., CA, **$565,082**, est. $600,000, 513 mi. rural distr. lines, Trinidad, COLORADO. Southeast Colorado Power Assn., La Junta, Colo. Bids Sept. 19, awarded Sept. 26. CD 9/8.

NEW MEXICO—State Hy. Comn., Capitol Bldg., Santa Fe,

Robert E. McKee, 60 Lincoln Ave., Santa Fe, N. M. CA **$199,632**. grading, minor drainage structures, structural plate pipe arch across the Santa Fe River, relocation of utilities, concrete curbs, sidewalks, watering and rolling, stabil. base course, hot plant b. conc. pavement, site clearing, removing existing structures, misc. constr. on Capitol Grounds and in the vicinity of City of Santa Fe, State Proj. No. 481. Santa Fe Co. Bids Oct. 6.

BUILDINGS

LOW BIDS AND CONTRACTS

J. E. Hathman Constr. Co., Hathman Bldg., Columbia, Mo. CA. 2 story, bsmt., 66x100 ft., brick stone, steel, concrete slab on corruform STUDENT CENTER, COLUMBIA, MO Presbyterian Student Assoc., c/o Rev. Charles Pratt, minister, First Presbyterian Church, 100 Hitt St., Columbia, Mo. Bids Oct. 2. CD 9/17.

Chambers-Tarbell Constr. Co., 1643 Belleview St., Kansas City, Mo. LB **$305,370**. FOOD REFRIGERATION STORAGE and PROCESSING BUILDING, State Hospital 2, ST. JOSEPH, MO. Office Director P. Bldgs., State Capitol Bldg., Jefferson City, Mo. Bids Sept. 30. CD 9/18.

C. Rallo Contg. Co., Inc., 5000 Kemper Ave., St. Louis, Mo. CA Est. **$130,000**. 1 story, 150x225 ft., brick, concrete, steel WAREHOUSE and OFFICE, 5038 Kemper Ave., ST. LOUIS, MO. Ann V. McAdams, 706 Chestnut St., St. Louis 1, Mo. Preston J. Bradshaw, 18000 Olive St., St. Louis 1, Mo., archt.

▲ **Robert Paulus Constr. Co.**, 3441 Morganford Rd., St. Louis 16, Mo. CA, **$2,555,791**. 6 story, 35x243 ft., brick, concrete, steel, stone HOSPITAL wing addn., with 1 story, bsmnt., section 28x125 ft. and approx 70% rebuild present 1, 2 and 3 bldgs. and connect with addn., ST. LOUIS, MO. St. Louis Children's Hospital, Royal D, Kercheval, pres., 500 S. Kingshighway, St. Louis 10, Mo. CD 9/30, under LB.

A. Borchmand Sons, 4601 Douglas St., Omaha, Neb., CA **$114,633**, general constr. meat packing PLANT, OMAHA, NEB. James F. O'Neill, 3217 2nd St., Wyandotte, Mich. Bids Sept. 30. CD 9/24.

▲ **Leonard Constr. Co.**, 37 S. Wabash St., Chicago, Ill. CA **$4,000,000**.. Sulphuric Acid PLANT, GALENA, KAN. Eagle-Picher Co., American Bldg., Cincinnati, O. Singmaster & Breyer, Graybar Bldg., New York, N.Y., engrs. CD 9/26.

Hahner, Foreman & Cale, Inc., Great Bend, Kan. CA **$100,000**. total est. $3,000,000. 3 story 15,000 kw POWER PLANT on 80 acre tract, GREAT BEND, KAN. Western Light & Telephone Co., 2015 Forest Ave., Great Bend, Kan. (**Correction**—contractor). CD 9/26, under CA.

Sunrise Housing, Inc., 3410 Fillmore St., Amarillo, Tex. Owner Builds. approx. **$315,000**. 19 addnl. DUPLEXES, AMARILLO, TEX. CD 10/3.

Martin B. Semands, Inc., Box 979, Conroe, Tex., CA **$581,491**, County HOSPITAL addn., CONROE, TEX. Montgomery Co., Conroe, Tex. Bids Oct. 7, awarded Oct. 9. CD 9/23.

James F. Lyon, The Builder, 2023 S. Shepherd St., Houston Tex. Owner Builds. Approx. **$425,000**. Unit 2, Sect. 1, 40 DWELLINGS, near HOUSTON, TEX. CD 7/31.

Oak Forest Constr. Co., 4327 Ella Blvd., Houston, Tex. Owner Builds. Approx. **$360,000**. 40 DWELLINGS, HOUSTON, TEX. CD 9/26.

Homes Beautiful, Inc., 5615 H M C, Houston, Tex., Owner Builds. **$300,000**. 25 DWELLINGS, HOUSTON, TEX. CD 7/16.

B. F. Sturman, 204 Winkler Dr., Houston, Tex., Purchase and Hire. Approx. **$300,000**. 13 DWELLINGS, near HOUSTON, TEX. CD 7/18.

Robert H. Smith & Co., 1215 Kolfahl St., Houston, Tex. CA. Approx. **$490,000**. WAREHOUSE, HOUSTON, TEX. Damon Wells, 2107 McKinney St., Houston, Tex. George L. Kelly, 4607 Walker St., Houston, Tex. engr. CD 10/6.

Fisher Constr. Co., 4711 Greeley St., Houston, Tex. CA **$537,200**. 26-room elementary SCHOOL, PASADENA, TEX. Pasadena Independent School Dist., Pasadena, Tex. Bids Sept. 30. CD 9/16.

Martin & Jaffe, Milan Bldg., San Antonio, Tex., CA Approx. **$385,000**. 50 DWELLINGS, SAN ANTONIO, TEX. Rogers-Jaffe-Martin Co., Milan Bldg., San Antonio, Tex. CD 8/7.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Idaho**—DISCONNECTING SWITCHES, etc.—B.A. 11/5—U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash., three 115-kv., 600 amp. disconnecting switches 9 lighting arresters and 553 insulators for Albeni Falls Power Plant, Inv. 53-26; 2 battery-charging motor-generator sets for Albeni Falls dam, Inv. 53-28. CD 9/12/44, under Earthwork, Waterways.

† **Idaho**—EQUIPMENT—B.A. 11/6—U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash., telephone and code call equipment for Albeni Falls dam, Inv. 53-27. CD 9/12/44, under Earthwork, Waterways.

† **California**—B.A. 11/18—Dist. P. Wks. Office, Eleventh Naval District, 1220 Pacific Hy., San Diego, earthwork, pipe line and structures North station 1968 plus 15 to South station 34 plus 26, San Jacinto-

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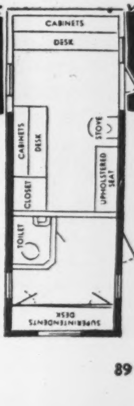

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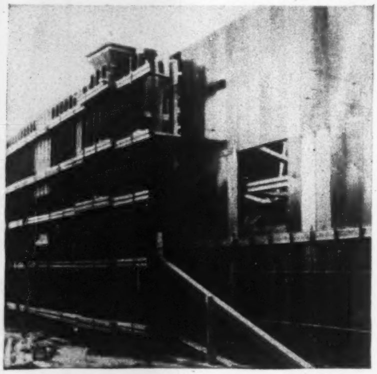

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San Vicente Aqueduct, San Diego Proj. between Fallbrook and Riverside, Spec. DC 3822; adv. ENR 10/23. CD 4/20/45.

† Washington—TRANSFORMERS—B.A. 12/1—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, ten 103,300-kva transformers for Chief Joseph Dam, Brewster, Inv. 53-25. CD 9/12/44, under Earthwork, Waterways.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Layne & Bowler, Inc.**, 2075 Chelsea Ave., Memphis, Tenn., CA. **$48,168**, Sch. 1, five deep-well pumping units with spare parts and accessories for Wells No. 4B824, 10A824, 14A824, and 15A824, Minidoka Proj., Spec. 100S-150, IDAHO. Bureau Reclamation, Dpt. Interior, Boise, Idaho. Bids Aug. 28, awarded Sept. 19. CD 8/1.

† **Gibbons & Reed Co.**, 259 W. 3 St. South, Salt Lake City, Utah, LB. **$168,332**, est. $137,152, earthwork and structures for improvement of 10-mi. reach of Provo River Channel, Jordanelle to Deer Creek Reservoir, Spec. DC-3777, Provo River Proj., UTAH. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids Sept. 30. CD 9/23.

WASHINGTON—State Hy. Dpt., Olympia,

H. Halvorson, Inc., 3818 N.E. Sandy St., Portland, Ore., CA. **$236,566,** rein.-con. girder undercrossing on Vancouver freeway section of Hy. 1 at 39 St., together with clearing, draining, grading b. conc., storm sewers 0.508 mi. Fed. Aid Clark Co.;

N. Fiorito Co., 844 W. 48 St., Seattle, Wash., CA. **$237,764**, rein.-con. box girder bridge together with draining, grading, surf. b. conc. paving 1.8 mi. Hy. 3, Parker to Sawyer, Federal Aid, Yakima Co. Bids Oct. 7. CD 9/24.

WASHINGTON—State Hy. Dpt., Olympia, Wash.

H. Kathman, 12054 23 Ave., N.E., Seattle, 55, Wash., CA. **$222,381,** b. conc. surf. 1.78 mi. Hy. 1-D, Columbia beach vicinity, Federal Aid, Island Co.;

Murphy Bros., E. 3207 22 St., Spokane, Wash., CA. **$94,692**, light bit. 1.52 mi. Hy. 3 Deadman Creek south relocation, Ferry Co.;

Ellis Constr. Co., Ephrata, Wash., CA. **$79,945**, draining, grading, surf. 15.4 mi. feeder roads, Winchester south and west, Grant Co. Grand total $397,018. Bids Oct. 7. CD 9/24.

† **WASHINGTON**—Bureau P. Rds., Dpt. Commerce, Moran Bldg., Portland, Ore.,

Strong & MacDonald Inc., 4045 Ruston Way, Tacoma, Wash., LB, **$249,038,** 211 ft. rein.-con. bridge and grading 1.9 mi. Finney Creek Rd., Proj. 341-B Skagit Co. Bids Oct. 9. CD 9/29.

† **John H. Sellen Constr. Co.**, 228 9 Ave. N., Seattle, Wash., LB, **$69,346,** est. $48,553, roads, walks, drainage work, Paine Air Force Base, Ivv. 53-4, EVERETT, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Oct. 10. CD 8/28, under LB.

Seattle Contg. Co., 101 Nickerson St., Seattle, Wash., LB, **$275,715**, paving 40 Ave. S.W., etc., in West Seattle, SEATTLE, WASH. City, County Bldg., Seattle, Wash. Bids Oct. 8.

Armco Drainage & Metal Products Co., 2321 S.E. Gladstone St., Portland, Ore., LB, **$49,370,** asbestos wrapped pipe for water system, STEVENSON, WASH. Skamania County Public Utility Dist., Stevenson, Wash. N. W. Haner & Assocs., 220 S.W. Alder St., Portland, Ore., engrs. CD 10/8.

† **S. Morgan Smith & Co.**, York, Pa., LB **$577,500,** three 48x15 ft. crest gates for Savage Rapids diversion dam, Spec. DS-3765, Grants Pass Proj., OREGON. Bureau Reclamation, Dpt. Interior, Bldg. 1 A, Denver Federal Center, Denver, Colo. Bids Oct. 7. CD 9/25.

▲† **Guy F. Atkinson & Ostrander Constr. Co.**, 10 W. Orange St., South San Francisco, Calif., CA **$14,437,978,** spillway for The Dalles Dam, Civeng 35-026-53-35, OREGON and WASHINGTON. U. S. Eng., Pittock Block, Portland, Ore. Bids Oct. 7, awarded Oct. 10. CD 10/10, under LB.

Marshall Constr. Co., Hermiston, Ore., CA **$76,155.** sewage disposal plant, ATHENA, ORE. City, City Hall, Athena, Ore. Bids Sept. 30, awarded Oct. 8. CD 9/11.

Hermeck & Easter, P.O. Box 147, Santa Maria, Calif., CA, **$34,226,** flood control construction in Miguelito Channel near Lompoc, CALIFORNIA. Dpt. Agriculture, Soil Conservation Service, H and Pine Sts., Lompoc, Calif. Awarded Oct. 1.

† **Brown Boveri Corp.**, 19 Rector St., New York, N. Y. LB. **$99,300,** two circuit breakers and one bushing potential device for Folsom-Elverta terminal switching facilities, Central Valley Proj. American River Div., Spec. DS 3776, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo. Bids Sept. 30. CD 8/27.

† **Erickson & Campbell,** 800 "R" St., North Sacramento, Calif., CA, **$748,732,** Central HEATING PLANT and steam distribution system for hospital area, Spec. 1579, BEALE AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Sept. 19, awarded Oct. 6. CD 9/29, under LB.

▲ **Morrison-Knudsen, R. A. Westbrook,** 411 W. 5 St., Los Angeles, Calif., LB, **$3,143,694**, Garvey Reservoir for Colorado River Aqueduct Distribution System, Monterey Park, LOS ANGELES, CALIF. Metropolitan Water Dist. of Southern Calif., 306 W. 3 St., Los Angeles, Calif. Bids Oct. 8. CD 9/15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **R. T. Earley Co.**, 321 Middle Waterway, Tacoma, Wash., CA. **$1,205,730,** ADMINISTRATION BLDG. for City Light Department, TACOMA, WASH. City, City Hall, Tacoma, Wash. Bids Sept. 29. CD 10/3, under LB.

Alfred P. Fisher, 300 Montgomery St., San Francisco, Calif., CA, **$545,948,** CLASSROOM BLDG. 1, 3 story, bsmnt., San Francisco State College, SAN FRANCISCO, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids Sept. 30, awarded Oct. 8. CD 10/7, under LB.

Nielsen & Nielsen, 1185 Coolidge Ave., San Jose, Calif., LB, **$412,786,** McGinness Ave. SCHOOL for East Side, SAN JOSE, CALIF. Alum Rock Union School Dist., N. White Rd., San Jose, Calif. Bids Oct. 3.

ALASKA

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

† **Lease & Leigland and M-B Contg. Co.,** 1501 N. 35 St., Seattle, 3, Wash., CA. **$731,000.** sewers in dispersal cantonment area, Inv. 53-22, FORT RICHARDSON, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Sept. 30 CD 10/7, under LB

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Alta., Wainwright—OUTSIDE FACILITIES—B.A. 10/30—K. F. Hurst c/o Defence Contr. (1951) Ltd., 400 Kensington Bldg., Winnipeg, Man., outside facilities and domestic services, for Govt. of Canada, Dpt. National Defence ARMY, Cartier Sq., Ottawa, Ont.

BIDS ASKED—BUILDINGS

▲ **Ont., Cobourg**—WAREHOUSES—B.A. 10/28—Defence Production Ltd., 441 Queen's Quay W., Toronto. Warehouses 5 and 6 at military ordnance plant, $1,500,000. Plans deposit $100. C. C. Parker & Assocs., 63 John St. S., Hamilton, Ont. engrs. R. P. Opie, c/o owner, engr. Robert D. Schoales, 260 Cathcart St., London, archt.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲ **Marwell Constr. Co., Ltd.,** 1500 West Georgia St., Vancouver, B. C., CA, **$4,100,000.** 3 story, rein.-con., cantilever hangar and workshop at air force base, NAMAO, ALTA. Defence Constr., Ltd., Kensington Bldg., Winnipeg, Man. Bids Sept. 16, awarded Oct. 4. CD 8/15.

▲ **Campbell & Bennett, Ltd.,** 1718 West 5 Ave., Vancouver, B. C., CA, Approx. **$10,000,000,** clearing right-of-way, constr. culverts, timber bridges and concrete substructures for steel bridges on 41 mi. of railway from Terrace to Kitimat, BRITISH COLUMBIA. Canadian National Rys., Western Region, J. L. Charles, ch. engr., Winnipeg, Man. Bids Sept. 10. CD 8/15.

MANITOBA—Province of Manitoba, Winnipeg,

A. M. Kelley & Son, Ltd., 316 MacIntyre Bldg., Winnipeg, Man., CA. **$72,775,** about 13.7 mi. gravel course, Rhineland.

Newfoundland Engineering & Constr. Co., 391 Water St., St. John's, Newfoundland, CA. **$225,000** buildings at Goose Bay airport, incl. 5 houses, warehouse, heating and electrical systems in equipment garage, repairing existing bldgs., GOOSE BAY, NEWFOUNDLAND. Awarded Oct. 3.

McKay-Cocker Constr., Ltd., 233 Dundas St., London, Ont., CA. **$306,728,** water storage reservoir, sewage tr. plant and storm sewers at air force base, AYLMER, ONT. Defence Constr. Ltd., 441 Queen's Quay W., Toronto, Ont. Bids Aug. 6, awarded Sept. 10. CD 7/21.

Windeler Electric Co. Ltd., 102 Bond St., Toronto, Ont., CA. **$202,418,** electrical distr. system and transformer sub-station at military camp, CAMP BORDEN, ONT. Defence Constr. Ltd., 441 Queens Quay W., Toronto, Ont. R. P. Opie, c/o owner, regional engr. Bids June 16, awarded Sept. 10. CD 6/6.

Kilmer Van Nostrand, Ltd., 315 Eglinton Ave. W., Toronto, Ont., CA. **$68,881** paving Bathurst St. between Lawrence Ave. and south township limits, WILLOWDALE, ONT. North York Twp., 5145 Yonge St., Willowdale, Ont. Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, Ont., engrs. Gordon H. Baker, c/o owner, twp. engr. Awarded Oct. 6.

W. C. Wells Constr. Co., Ltd., 104 Ave. F, North, Saskatoon, Sask., CA. **$199,700,** paved roads, sidewalks, parking areas, general grading, at Saskatoon Air Force Base, SASKATOON, SASK. Defence Constr. Ltd., Kensington Bldg., Winnipeg, Man. Awarded Sept. 15.

BUILDINGS
LOW BIDS AND CONTRACTS

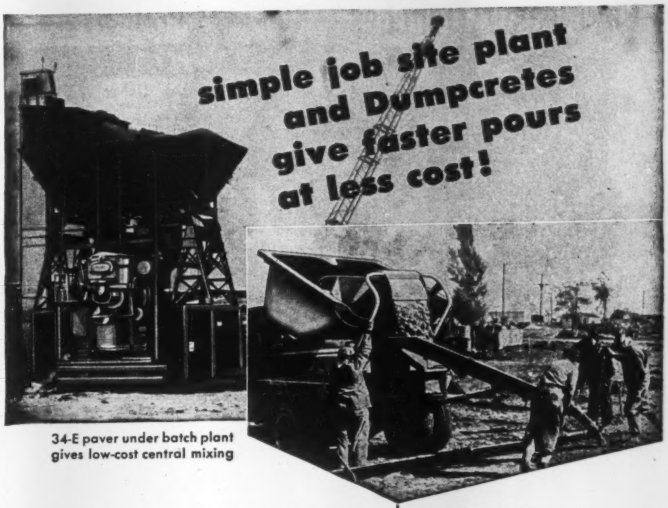
▲ **C. H. Whitham, Ltd.,** 10570 113 St., Edmonton, Alta., CA. **$1,000,000,** caustic soda chlorine PLANT, DUVERNAY, ALTA. Western Chemical Ltd., Michael Bldg., Calgary, Alta. J. T. Donald & Co., Ltd., 1181 Guy St., Montreal, Que., engrs.

Milne & Nicholls, Ltd., 57 Bloor St. W., Toronto, Ont., CA, **$500,000,** 1 story, 82,000 sq. ft., steel, concrete block PLANT, OFFICE and GARAGE, AJAX, ONT. Canadian Automotive Trim, Ltd., 658 St. Luke Rd., Windsor, Ont. Bids Sept. 19, awarded Oct. 10. CD 9/12.

LATIN AMERICA

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲ **Cia Constructora El Aguila, S.A.,** P. de la Reforma, 28, Mexico City, Mexico, CA **$30,000,000,** irrigation dam, AHOME, MEXICO. Hydraulic Resources Ministry, P. de la Reforma, 69, Mexico City, Mexico, Higinio Ramirez, c/o owner, engr. Awarded Oct. 9.



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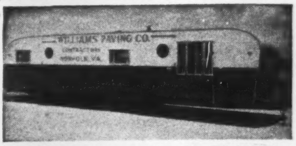

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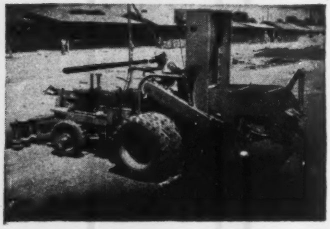


Proposed Projects

WATER SUPPLY

▲ **Calif., Anaheim**—City, 204 E. Center St., voted **$1,000,000** bonds, imprvs. water and electrical systems. George E. Holyoke, c/o owner, engr. CD 9/8.

▲ **Mich., Alpena**—City, M. Olsen, mgr., WW pumping station, change over from steam to electric, **$121,768;** altering filtration plant, **$8,250;** construct 750,000 gal. elevated storage tank, **$175,450;** replacing of wood water mains and extending present distr. sys., **$1,291,412** Drury, McNamee & Porter, State Savings Bank Bldg., Ann Arbor, consult. engrs. CD 11/16/44.

Okla., Purcell—City, voted bonds, water supply. **$274,000.** R. W. Delaney, Ada, consult. engr. CD 9/4.

SEWERS, WASTE DISPOSAL

▲ **Calif., San Lorenzo**—Ora Loma Sanitary Dist., 15099 Hesperion Blvd., voted **$1,570,000** bonds sewerage sys., CD 8/8/49.

Del., Newark—Town, voted bonds, sewerage facilities various locations, **$360,000;** sewer interceptor and collector line, **$200,000.** Whitman, Requardt & Assocs., 1304 St. Paul St., Baltimore, Md., consult. engrs. CD 10/19/51.

Ill., Paris—City, City Hall, storm and sanitary sewers **$800,000.** Consoer, Townsend & Assocs., 351 E. Ohio St., Chicago 11, Ill., consult. engrs. CD 1/10.

Ia., Indianola—City, c/o Carl F. Brown, clk., sewage treatment plant, **$275,753.** Buel & Winter, Insurance Exchange Bldg., Sioux City, Ia., consult. engrs. CD 12/3/45.

Ia., London—City sewage treatment plant, **$213,091.**

▲ **Mich., Alpena**—City, M. Olsen, mgr., sewer relief program storm and sanitary relief service **$780,000;** intersection sewers and sewage plant, **$620,000,** Drury, McNamee & Porter, State Savings Bank Bldg., Ann Arbor, consult. engrs. CD 11/16/44.

▲ **O., Maple Heights**—City, 15721 Broadway, storm and sanitary sewers, comprising several individual project incl. $900,000 for southwesterly district, $2,000,000 for northeasterly district. Est. **$3,000,000.** Rollin F. MacDowell & Assoc., Chester-12th Bldg., Cleveland, Zone 14 consult. engrs. CD 11/20/47.

▲ **R. I., Cranston**—City, P. Wks. Dpt., City Hall, sewer exten. Meshanticut Park. **$5,000,000.**

Tenn., Gatlinburg—City, sanitary sewer imprvs. **$500,000.** Wiedeman & Singleton, P.O. Box 1878, Atlanta, Ga., consult. engrs. CD 6/4/47.

▲ **Tenn., Nashville**—City, W. A. Coolidge, Dept. P. Wks., City Hall, sewage disposal plant. **$11,000,000.** Bertrand Goldberg & Assoc., 721 N. Michigan Ave., Chicago, Ill. consult. engrs. CD 4/1.

Tex., Dallas—City, City Hall, Main and Harwood Sts., storm sewers in western end exten. of Mockingbird Lane, **$60,000,** J. D. Mahoney, Jr., 3204 McFarin St., consult. engr.; storm sewer in portion Lovers Lane, Taos Rd. north and east, **$93,000,** storm sewer on portion Knights Branch, **$125,000,** Forrest & Cotton, Praetorian Bldg., consult. engrs. CD 4/3.

Tex., Killeen—City, Proj. B, sanitary sewer collection lines, **$115,000.** Joe J. Rady, 511 Insurance Bldg., Fort Worth, consult. engr. CD 6/25.

Wis., Mazomanie—Village, sewage treatment plant **$244,000.** Ward & Strand, 1 W. Main St., Madison, consult. engrs. CD 2/7/51.

BRIDGES

▲ **Ont., Toronto**—City, A. A. Lamport, mayor, City Hall, 2 railway grade crossings, one at Woodbine Ave. **$2,142,760; other at Dufferin St., $848,000.** CD 3/26/47.

STREETS AND ROADS

Calif., Los Angeles—Valley Associates, c/o Wm. H. Fahr, Jr., consult. engr., 354 S. Spring St., grading, paving, walks, sewers and storm drains in Tract 18561. **$138,000.**

▲ **MASSACHUSETTS**—Commonwealth of Mass., Metropolitan Dist. Comn., 20 Somerset St., Boston,

Boston—elevated hy. connecting Jas. J. Storrow Memorial Dr. with Fenway and overpassing Beacon St. and Commonwealth Ave., elevated sect. 1,100 ft. **$1,800,000.**

Tex., Dallas—City, City Hall, Main and Harwood Sts., paving and widen. Lovers Lane from Cotton Belt Ry to past Midway Rd. 6-lane, **$309,000;** Forrest & Cotton, Praetorian Bldg., consult. engrs.; cutting through and paving western end sect. of Mockingbird Lane, **$347,000.** J. D. Mahoney, Jr., 3204 McFarin St., consult. engr. CD 5/8.

▲ **Tex., Houston**—City, City Hall, 900 Brazos St., asph. paving Cullen Blvd. (portion) and area of Grady School, **$368,000;** W. Alabama Ave., Shepherd to Kirby Drives. **$82,000;** San Felipe Rd., Sage Rd. to New Post Oak Rd. **$168,985;** asph. paving Griggs Rd. and Holmes Dr. near intersection, **$255,000;** Broadway Blvd., Park Terrace Blvd. to Kingsley, **$205,000;** Calhoun Rd. Wheeler Ave. to Griggs Rd. **$177,000,** Lockwood & Andrews, Union Natl. Bank Bldg., consult. engrs.; asph. paving Cullen Blvd., North McGregor Way to Gulf Freeway, incl. storm sewers, **$380,000, W. E. White, city engr. CD 8/28.**

Tex., Odessa—Ector Co., Odessa, voted bonds **Sept. 27,** road work. **$250,000.** CD 9/15.

Tex., San Antonio—Bexar Co., Comrs. Court, Court House, bond election Nov. 4, widen portion Austin-San Antonio Hy. between Selma and Frett. **$450,000.** C. L. Swan, co. engr. CD 9/17.

▲ **Alaska, Anchorage**—City, City Hall, $2,000,000 bond election Oct. 14, paving 187 blocks streets. **$3,000,000. CD 7/1.**

EARTHWORK, WATERWAYS

Tex., Port Isabel—Port Isabel-San Benito Navigation Dist., Port Isabel, some dredging at southwest area, Port Isabel Turning Basin and addnl. docking facilities, **$145,000.**

▲ **Quebec**—Quebec H-E Power Comn., 107 Craig St. W., Montreal, power development on Bersimis River, dam and powerhouse, Gaspe Co. **$20,000,000.** H. E. Acres & Co., 2135 Culp St., Niagara Falls, Ont., engrs. CD 8/7.

AIRPORTS

Mass., Ayer—SERVICE CLUB—U. S. Eng., 857 Commonwealth Ave., Boston, service club, Fort Devens. **$324,000.** CD 12/31/51.

† **Wash., Moses Lake**—WAREHOUSES—U. S. Eng., City-County Airport, Walla Walla, plans by J. S. Villesvik, 109 3 St., Yakima, 2 frame supply warehouses at Larson Air Force Base. **$120,000.** CD 3/**5/51.**

AMERICANS ABROAD

▲ **France, Paris**—HEADQUARTERS—United National Educational, Scientific & Cultural Organization, United Nations Bldg., New York, N. Y., plans by Marcel Breuer, 113 E. 37 St., New York, N. Y., U.S.A., and Bernard Zehrfuss, Paris, France, asso. archt., 16 story headquarters. **$7,678,000.**

LATIN AMERICA

▲ **Mexico, San Cristobal Ecatepec**—Cia. Aznar, direccion concocido, San Cristobal **Ecatepec, plans** paper **factory. $1,000,000.**

PUBLIC BUILDINGS

▲ **Calif., Fresno**—HOUSING—Fresno City Housing Auth., 2511 Vassar Terrace, plans by Robt. W. Stevens, Anglo Bank Bldg., and Benjamin F. Lippold, 1272 Wishon Ave., 150-family dwelling units, Hamilton and Cedar Ave. **$1,000,000.**

Calif., Hayward—SCHOOL—Hayward Elementary School Dist., 1099 E. St., voted **$950,000** bonds schools. CD 8/11.

▲ **Calif., Nevada City**—SCHOOL—Nevada City Unified School Dist., Nevada City, defeated **$1,300,000** bonds, high school. CD 6/30.

Calif., Palo Alto—SCHOOLS—Palo Alto School Dist., P.O. Box 149, plans by Birge Clark, 321 Channing Ave., schools, Ventura Ave., Louis and Charleston Rds., **$840,000.** CD 4/5/51.

Calif., San Carlos—SCHOOL—San Carlos School Dist., San Carlos, **$500,000** bond election Dec. 5, school classrooms and site.

▲ **Calif., San Lorenzo**—SCHOOLS—San Lorenzo Elementary School Dist., P.O. Box 5, voted **$1,300,000** bonds, school. CD **8/11.**

▲ **Calif., San Marino**—SCHOOL—San Marino School Dist., San Marino, voted **$3,250,000** bonds, Carver High School, elementary school, addns. CD 7/31.

▲ **Colo., Denver**—SCHOOLS—School Dist. 1, 414 14 St., Denver, voted **$30,000,000** bonds, 12 elementary schools, 2 Junior High Schools, 8 school addns., completion of Denver's Opportunity School and remodeling 1 school. CD **6/26.**

Del., New Castle—SCHOOL—New Castle Special School Dist., plans by E. William Martin, 830 West St., Wilmington, William Penn High School addn. **$550,000.** CD 7/16/51.

Del., Wilmington—SCHOOL—Henry C. Conrad School Dist., Woodcrest, plans by Stanhope & Manning, 902 Orange St., Conrad High School addn. **$537,000.**

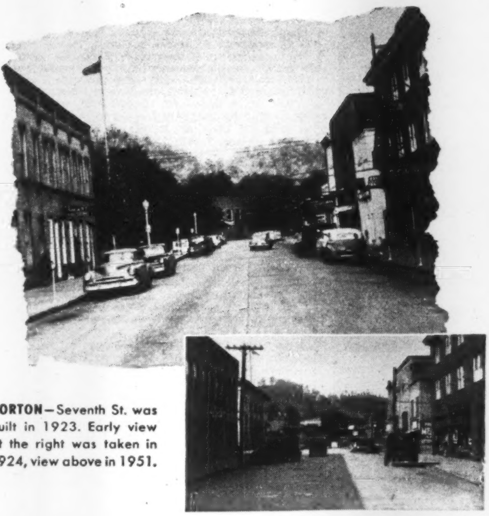
▲ **Ia., Cedar Rapids**—SCHOOL—Bd. of Educ., Cedar Rapids, defeated **$7,500,000** bonds, school building program. CD 9/2.

Kan., Kansas City—ARMORY—City, c/o 137 Infantry, Memorial Bldg., $500,000 bond election Nov. 4, armory, **$612,540.** Reeves & Schlup, 1401 Fairfax Trafficway, Kansas City, Kan., archts. CD 9/19.

▲ **Md., College Park**—DORMITORIES—University of Maryland, College Park, plans by Taylor & Fisher, 1012 N. Calvert St., Baltimore, 2 men's dormitories, **$1,200,000;** girls' dormitories, **$600,000.** CD **10/**15/45.

▲ **Md., Towson**—SCHOOLS—Baltimore Co. Bd. Educ., Aigburth Rd., plans by Taylor & Fisher, 1012 N. Calvert St., Baltimore, 2 or 3 story, masonry high school, Middle River area, Essex, **$2,000,000;** plans by Gaudreau & Gaudreau, 330 N. Charles St., Baltimore, masonry elementary school, Berkshire Rd., Dundalk, **$1,250,000;** plans by Wm. E. Gray, 328 N. Charles St., Baltimore, 1 and 2 story, **brick, concrete, cinder block school, incl. admin. offices, library, cafeteria,** Sunshine Ave., **$850,000.**

(Continued on page 94)



NORTON—Seventh St. was built in 1923. Early view at the right was taken in 1924, view above in 1951.

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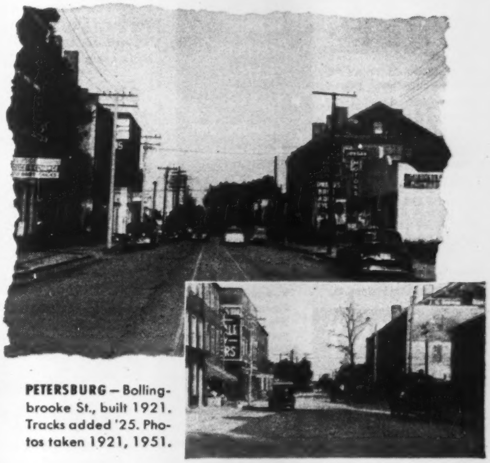
ROANOKE—Stanley Ave. at 26th St. Paved in 1923. Pictures taken in 1924 and in 1951.

NEWPORT NEWS—35th St. was built in 1919. The photos were taken in 1921 and in 1951.



PETERSBURG—Bollingbrooke St., built 1921. Tracks added '25. Photos taken 1921, 1951.

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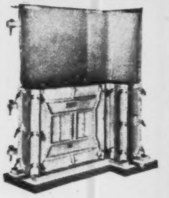

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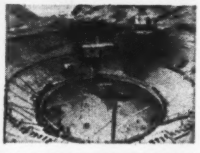

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(Continued from page 92)

▲ **Md., Upper Marlboro**—SCHOOLS—Prince Georges Co. Bd. Educ., plans by John M. Walton & Assoc., 2049 15 St. N., Arlington, Va., Cherryhill Senior High School, Hyattsville, **$2,000,000;** plans by Paul H. Kea, 5109 Baltimore Ave., Hyattsville, Lanham Junior High School, Landover Hills, **$500,000.**

Mass., Boston—HOSPITAL—State, Dpt. Mental Health, 15 Ashburton Pl., plans by Allied Engineering Corp., 71 Proctor St., Roxbury, 5 story, bsmnt., 36x144 ft., brick, rein.-con. research bldg., Psychopathic Hospital, M-404, **$900,000.** Wm. T. Donovan Co., 261 Park Square Bldg., Boston, struct. engr. Richard D. Kimball Co., 6 Beacon St., Boston, elec. engr. CD 5/12.

Mass., Chelsea—HOSPITAL—State, Bd. Trustees Soldiers Home, 91 Crest Ave., plans by Perry, Shaw & Hepburn, Kehoe & Dean, 31 St. James Ave., Boston, John G. B. Adams Memorial Hospital, addn., alterations. **$500,000.**

Mass., Hadley—SCHOOL—Town, School Bldg. Comn., Roger C. Barstow, chn., c/o Supts. Office, Hooker School, plans by James A. Britton, 315 Federal St., Greenfield, Senior and Junior High School, **$800,000.**

▲ **Mass., Wellfleet**—BARRACKS, etc.—U. S. Eng.; 857 Commonwealth Ave., Boston, barracks, road, shop, storage and recreational bldgs. **$1,097,000.** CD 12/28/51, under Unclassified.

Mass., Worcester—SCHOOL—City, Bd. Trustees, Grove St., plans by Franklyn R. Williams, 20 Elm St., and Delmar L. Lambert, 2 Stoneland Rd.,. boys' trade school, Lexington, Concord and Prescott Sts. **$600,000.** CD 12/4/51.

Minn., Park Rapids—SCHOOL—Bd. Educ., A. W. Lovik, clk., voted **$600,000** bonds Sept. 22, high school addn. Bettenburg, Townsend & Stoltze, 1437 Marshall Ave., St. Paul, archts. CD 5/2/51.

▲ **Mo., Jefferson City**—SCHOOLS—Bd. Educ. voted **$1,000,000** bonds Sept. 30, 2 schools, imprvs. CD 9/23.

Mont., Missoula—AUDITORIUM-PAVILION—State, Bd. Examiners, Helena, combination auditorium-pavilion at Montana State University, **$750,000.**

N. J., Freehold—COURT HOUSE—Bd. Freeholders Monmouth Co., court house addn. **$500,000.**

▲ **O., Toledo**—SCHOOLS—Bd. Educ., Oregon Local School Dist., Rte 5, **$2,081,500** bond election Nov. 4, schools. CD 5/25/51.

Okla., Ponca City—SCHOOL—Bd. Educ., Ponca City, plans by W. R. Brown, Ponca City, grade school **$500,000.**

▲ **Pa., Monroeville**—HIGH SCHOOL—School Dist. of Monroeville, Monroeville, plans by Walter Schardt, 6101 Penn Ave., Pittsburgh, 1 and 2 story, brick, block, steel Senior-Junior High School. **$2,500,000.**

▲ **Pa., Phila.**—HOUSING—Phila. Housing Auth., 42 S. 15 St., plans by Kahn, McAllister & Day, 138 S. 20 St., Mill Creek Housing Development, 45 and 46 Sts., etc. **$2,500,000;** plans by Liddenfield Architects, 1028 Market St., Liddenfield Proj., Cottage St., etc. **$3,500,000;** plans by Roth & Fleisher, 1420 Walnut St., Queen Lane Project, Pulaski Ave., **$1,000,000.** CD 9/12/49.

▲† **Tenn., Oak Ridge**—HOUSING—U. S. Atomic Energy Comn., Oak Ridge plans by Faires & Sanford, Falls Bldg., Memphis, 500 housing units. **$4,500,000.**

Tex., Austin—FARM COLONY—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., plans by C. H. Page & Son, 305 W. 11 St., Farm Colony addn. **$900,000.** CD 10/2.

Tex., Big Spring—HOSPITAL—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Carroll & Daeuble, 1001 E. Yandell St., El Paso, state hospital addn. **$950,000.** CD 9/17.

Tex., Brownsville—HOSPITAL—Cameron Co., Comrs. Court 75-bed tuberculosis hospital. **$500,000.** (Sponsored by Earl C. Sams Foundation, Brownsville).

▲ **Tex., San Antonio**—CLASSROOMS, etc.—Union Junior College Dist., c/o W. W. McAllister, 401 Navarro St., voted bonds Sept. 30, 35 classrooms unit, **$450,000;** 6 laboratory units, **$300,000;** 6 engineering shop units, **$325,000;** fine arts bldg. **$325,000;** student union-library, **$315,000,** for San Antonio College. CD **9/9.**

W. Va., Wheeling — HOUSING — Housing Authority of Wheeling, Wheeling, plans by Frederic Faris, 1117 Chapline St., 1 story, bsmnt., brick veneer 38-unit housing. **$500,000.**

▲ **Ont., Chatham**—HOSPITAL—Public General Hospital Bd., Ron Todgham, chn., Chatham, plans by Govan, Ferguson & Lindsay, Royal Bank Bldg., Toronto, 2 story, brick, steel, concrete hospital addn. **$1,000,000.** CD 12/5/15.

COMMERCIAL BUILDINGS

▲ **Ala., Birmingham** — SHOPPING CENTER — Meyer Shiland, c/o Lawrence S. Whitten, archt., Brown-Marx Bldg., shopping center, Bessemer Highway **$2,000,000.**

Calif., Lancaster—DWELLINGS—Milton Kaufman, 2918 W. Compton St., Gardena, plans by James R. Friend, 556 W. 5 St., San Pedro, 55 frame, stucco dwellings, Tract 17726, **$550,000.**

▲ **Calif., Long Beach**—DWELLINGS—M. J. Brock & Sons, 2894 Rowena Ave., Los Angeles, plans by Paper & Lockett, Farmers & Merchants Bldg., 325 frame, stucco dwellings in Los Altos District, **$2,500,000.**

Calif., Palmdale—DWELLINGS—Paul L. Burkhard, 610 S. Glendale Ave., Glendale, 107 frame, stucco dwellings, Tract 18674, **$856.000.**

Calif., San Pedro—DWELLINGS—Rolling Meadows Co. Ltd., 219 S. Hawthorne Blvd., Hawthorne, plans by

James R. Friend, 556 W. 5 St., San Pedro, 51 frame, stucco DWELLINGS, Monte Malgaa St. and Palos Verde Dr. **$700,000.**

▲ **Mass., Quincy**—COMMUNITY CENTER—Young Men's Christian Assn., Carle R. Hayward, chn. Bldg. Comn., 61 Washington St., plans by Cram & Ferguson, 248 Boylston St., Boston, 4 story, Y. M. C. A. Community Center, incl. dormitory units, swimming pool, gymnasium, bowling alley, boys' rooms and lockers, similar facilities for girls and women, Coddington and Newcomb Sts., **$1,000,000.**

Mich., Detroit—CHURCH—St. Jude's R. C. Parish, Milton C. Kraemer, genl. chn. Fund Campaign, 1 and 2 story, bsmnt., brick, steel, stone church, E. Seven Mile Rd. **$800,000.**

▲ **Minn., Minneapolis** — SHOPPING CENTER — Allied Stores, Inc., B. E. Puckett, chn. Bd., 401 Fifth Ave., New York, N. Y., suburban shopping center containing 220,000 sq. ft. branch department store, 75 retail stores, 76 St. and Humboldt Ave. South, Richfield Village, **$10,000,000.**

▲ **Minn., Minneapolis** — SHOPPING CENTER — J. C. Penney Co., 330 W. 34 St., New York, N. Y., plans by George Becker, 1201 Turners Cross Rd., suburban shopping center contain branch department store, provision for 38 retail stores, 66 St. and Nicollet Ave., Richfield Village, **$5,000,000.**

Minn., Rochester—DEPARTMENT STORE—The Dayton Co., D. C. Dayton, pres., 7 St. and Nicollet Ave., Minneapolis, plans by Victor Gruen, 8640 Santa Monica Blvd., Hollywood, Calif. Larson & McLaren, assoc. archts., 1901 Foshay Tower, Minneapolis, remodel bldg. into 5 story department store, **$970,000.**

▲ **Minn., St. Paul** 1—SHOPPING CENTER—Allied Stores, Inc., B. E. Puckett, chn. Bd., 401 Fifth Ave., New York, N. Y., suburban shopping center containing 220,000 sq. ft. branch department store, 75 retail stores, Snelling Ave. and Hy. 36, **$10,000,000.**

Mont., Billings—OFFICE—John A. Stephenson & Co., realtors, 8 N. Second Ave., Duluth, Minn., plans by Orr Pickering & Assoc., Fratt Bldg., office, **$800,000.**

▲ **N. Y., New York**—UNIVERSITY BUILDINGS—New York University, Washington Square, plans by Eggers & Higgins, 100 E. 42 St., New York, Zone 17,

WASHINGTON SQUARE CENTER

Classroom bldg., **$5,970,000;** Central Library, **$5,260,000;** Student Center, **$4,800,000;** Science Bldg., **$3,300,000;** two dormitories, **$3,500,000.**

UNIVERSITY HEIGHTS

Engineering Bldg., **$3,800,000;** Student Center, **$1,500,000;** Dormitory, **$545,000;** Military Science bldg. and completing Havermeyer Hall, **$685,000.** Plans by Skidmore, Owings & Merrill, 575 Madison Ave., Zone 22,

WALL STREET CENTER

Graduate School of Business Administration, **$3,670,000.**

EAST TWENTY THIRD STREET CENTER

College of Dentistry Bldg. **$5,000,000.**

▲ **N. Y., Rotterdam**—SHOPPING CENTER—A. DeLuke & Sons, 151 Barrett St., Schenectady, plans by Giles Y van der Bogart, 311 State St., Schenectady, shopping center providing space for 35 stores on 18-acre site. **$1,350,000.**

N. Y., Rotterdam—SHOPPING CENTER—DeSantis & Stine, 144 Barrett St., Schenectady, shopping center, parking lot and play area, **$750,000.**

▲ **O., Dayton**—OFFICE—Inland Mfg. Div. of General Motors Corp., 2727 Inland St., 2 story, 125,000 sq. ft. floor space, addn. atop present office, on Abbey Ave. **$1,170,000.**

▲ **Pa., Sharon**—HOSPITAL—Sharon General Hospital, Sharon, plans by The Thayer Co., 408 Greer Bldg., New Castle, 5 story bsmnt., brick, steel hospital addn. **$1,000,000.**

▲ **S. C., Charleston**—HOSPITAL—Bd. Comrs., Roper Hospital, 315 Calhoun St., Roper Hospital addn. **$5,000,000.**

▲ **Tex., Houston**—SHOPPING MARTS—Brace & Carruth, 706 Garden Oaks St., plans by R. C. Shaner, 4019 River Dr., and P. Herbert Caldwell, 4122 Glenbrook Ct., Unit 1, 146,000 sq. ft. masonry, steel brick shopping mart, bldg. will be 850 ft. long, **$3,000,000,** Unit 2, 850 ft. long masonry, steel shopping mart, **$2,500,000,** both on 42-acre tract, along N. Shepherd Dr. at W. 11 Ave. CD 8/13/51.

Tex., Pasadena—DWELLINGS—Taylor Made Homes, Inc. and Martin Lumber Co. & Assoc., Pasadena, Group 2, 15 masonry dwellings, air-conditioning, **$300,000;** Group 3, 24 masonry dwellings, concrete slab fdn., air-conditioning, **$490,000;** Group 4, 30 masonry, cedar shake dwellings, concrete slab fdn., air-conditioning, **$625,000** in an additional area off Long Point Rd., near here.

Tex., Wichita Falls—STORE—Perkins-Timberlake Co., Wichita Falls, plans by Burke, Kober & Nicolais, 816 W. 5 St., Los Angeles, Calif., remodeling store and 4 story, 85,000 sq. ft. masonry addn. **$675,000.**

Wash., Clarkston—HOSPITAL—Asotin Co. Memorial Hospital Assn., Clarkston, 1 story hospital, **$750,000.**

▲ **Wash., Seattle**—HOSPITAL—Ballard General Hospital, 2208 W. Market St., plans by J. W. Maloney, Central Bldg., Zone 4, hospital, **$1,050,000.** CD 3/23/50.

▲ **Wash., Spokane**—HIGH SCHOOL—Catholic Archdiocese of Spokane, S 317 Howard St., plans by J. W. Maloney, Central Bldg., Seattle, Zone 4, Gonzaga High School **$1,000,000.** CD 9/12/49.

▲ **Wis., Milwaukee**—AUDITORIUM, etc.—Mt. Mary College, 2900 N. Menomonee River Dr., plans by Wm. G. Herbst & Assocs., 1249 N. Franklin Pl., Milwaukee, Zone 2, auditorium and dormitory, **$1,000,000.**

INDUSTRIAL BUILDINGS

▲ **Ill., Chicago**—PLANT—Ford Motor Co., 3000 Schaefer Blvd., Dearborn, Mich., automobile assembly plant addn., powerhouse expansion at Chicago Assembly Plant, Torrence Ave. and Calumet River **$4,000,000.** CD 2/27/51.

Ill., Chicago—FACTORY—Quam-Nichols Co., 526 E. 33 Pl., Chicago, 1 and 2 story, 60,000 sq. ft. television parts factory, 216 E. Marquette Rd., **$550,000.**

▲ **Ia., Davenport**—ROLLING MILL—Aluminum Co. of America, Gulf Bldg., Pittsburgh, Pa., aluminum rolling mill, **$6,500,000.** T. D. Jolly, c/o owner, ch. engr.

▲ **Mass., Boston**—PLANT—Westinghouse Electric Corp., Sturtevant Div., Damon St., plant addn., Damon St., **$1,250,000** Charles T. Main, Inc., 80 Federal St., Boston, consult. engr. CD 10/3.

▲ **Mo., Pagedale** (St. Louis 14 P. O.)—WAREHOUSE—Metal Goods Corp., 5239 Brown Ave., St. Louis, Zone 15, 175,000 sq. ft., brick, concrete, steel warehouse, 2 story, 50,000 sq. ft. office, railroad spurs, roads, facilities on 17 acre tract in 8900 block of Page Blvd. **$1,500,000.**

▲ **N. M., Farmington**—PLANT, etc.—El Paso Natural Gas Co., Bassett Tower, El Paso, Tex., addnl. gasoline absorption plant facilities, **$7,000,000;** addnl. dehydration facilities, **$4,500,000;** 5,500 hp. field compressor units, **$550,000;** 7,500 hp. main-line compressor units, **$750,000.** **CD 9/22.**

▲ **O., Warren**—FACTORY—Mullins Mfg. Co., Larchmont Ave., factory addn., adjacent to main plant off Larchmont Ave., with 20,000 sq. ft. floor space, for cold extrusion of steel products. Will be used by Koldflow Div. just formed. **$2,600,000.**

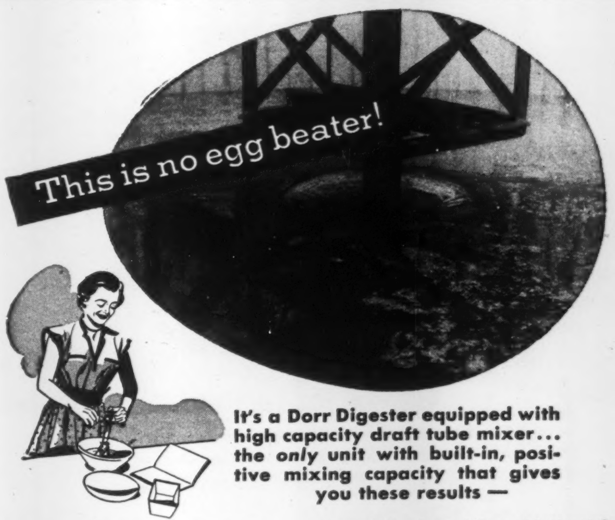
▲ **O., Maple Heights**—DAIRY, etc.—Lawson Milk Co., 210 Broadway, Akron, dairy, bakery, ice cream plant, on 10-acre tract on Harrison Ave. off Broadway, along Nickel Plate R.R. **$1,000,000.**

▲ **Pa., Elrama**—PLANT—Detroit Steel Products Co., 2250 E. Grand Blvd., Detroit, Mich., steel fabricating plant, Jefferson Twp., near here. **$1,000,000.** Pittsburgh Industrial Eng. Co., 3939 Butler St., Pittsburgh, engrs.

Tex., Houston—MILL—J. P. Coulter & Assoc., 3005 Robinhood St., mill for processing high grade barium sulphate. **$650,000.**

▲ **Alta., Edmonton**—PLANT—Barcam Ltd., c/o 1718 W. 5 Ave., Vancouver, B. C., gas asborption plant, **$10,000,000.**

▲ **Ont., Toronto**—CHEMICAL PLANT—Rohm & Haas Co. of Canada Ltd., Terminal Bldg., chemical plant on 20-acre site in Scarboro Industrial area, **$3,000,000.**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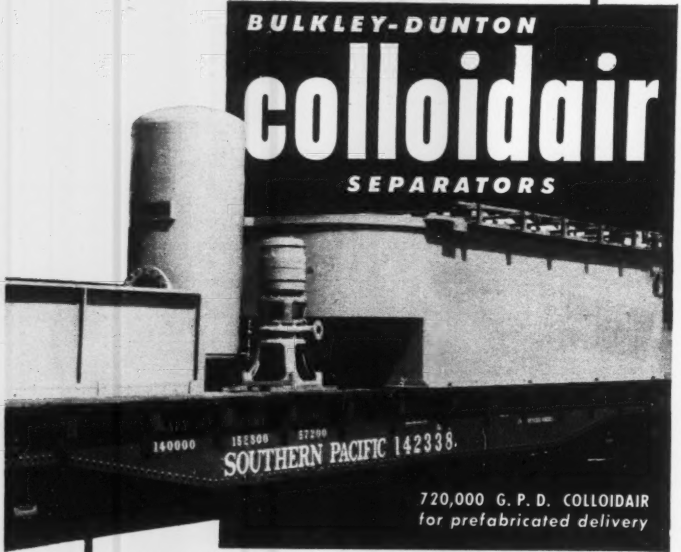

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UNCLASSIFIED

Ala., Birmingham—TELEVISION STATION—Birmingham News Co. (WSGN) 2200 First Ave. N., television station, **$496,000.** George E. Gautney, Warner Bldg., Wash., D. C., consult. engr.

Ala., Mobile—TELEVISION STATION—Pape Broadcasting Co., Inc. (WALA) Box 1548, Mobile, television station, **$450,000.** L. J. N. Dutreil & Assocs., 204 Homedale Ave., New Orleans, La., consult. engrs.

Ala., Montgomery—TELEVISION STATION—Montgomery Broadcasting Co., Inc. (WSFA) Box 1031, television station, **$480,000.** George E. Gautney, Warner Bldg., Wash., D. C., consult. engr.

Calif., San Diego—TELEVISION STATION—Airfan Radio Corp., Ltd. (KFSD) 326 Broadway, television station, **$730,000.**

Colo., Denver—TELEVISION STATION—KMYR Broadcasting Co., Security Life Bldg., television station, **$440,000.** George E. Gautney, Warner Bldg., Wash., D. C., consult. engr.

Colo., Denver—TELEVISION STATION—Metropolitan Television Co., 730 Equitable Bldg., Denver, Colo. television station, **$521,000.** Frank G. Kear, 1302 18 St. N.W., Wash., D. C., consult. engr.

Idaho—RURAL DISTRIBUTION LINES—Salmon River Electric Co-operative, Challis, 73 mi. rural distr. line and sys. improv., Custer Co. **$435,000.** CD 5/24/50.

Kentucky—RURAL DISTRIBUTION LINES — Jackson County Rural Electric Corp., McKee, 248 mi. rural distr. lines, Jackson Co. **$890,000.** CD 2/9/50.

Minnesota—RURAL DISTRIBUTION LINES—Co-operative Light-Power Assoc. of Lake County, Two Harbors, 120 mi. rural distr. lines, sys. imprvs., Lake Co. **$415,000.** CD 9/28/48.

▲ **N. M., Farmington**—GAS LINES—El Paso Natural Gas Co., Bassett Tower, El Paso, Tex., 97 mi. main-line loops, **$4,750,000;** expansion of field gathering gas lines, **$1,500,000.** CD 2/7.

▲ **Ohio**—PIPE LINE, etc.—East Ohio Gas Co., 1405 E. 6th St., Cleveland, Zone 14, 26 in. pipe line from Maumee to Cleveland, **$7,500,000;** storage facilities, **$760,000;** transmission facilities all for natural gas, **$862,000.**

O., Cuyahoga Heights—SWIMMING POOL—Village, 4863 E. 71 St., bond election Nov. 4, municipal swimming pool. **$500,000.**

▲ **O., Toledo**—GENERATING STATION—Toledo Edison Co., Edison Bldg., 125,000 kw electric generating station, high pressure boiler, turbogenerator, condenser, switching and substation equip., coal-handling equip., railroad trackage and ash disposal, on 400-acre site near Maumee Bay shore east of Harbor View, bounded by Wynn, DuPont and Cedar Point Rds. and Maumee Bay. **$25,000,000.** Paul H. Gravelle, c/o owner, engr. CD 6/20/50.

Pa., Reading—TELEVISION STATION—Hawley Broadcasting Co. (WEEU) 433 Penn St., television station, **$440,000.** Commercial Radio Equipment Co., 1319 F St. N. W., Wash., D. C., consult. engr.

▲ **R. I., Providence**—TELEVISION STATION—Cherry & Webb Broadcasting Co., (WPAO), 24 Mason St., television station, **$1,000,000.** James C. McNary, Natl. Press Bldg., Wash., D. C., consult. engr.

▲ **Tennessee**—RURAL DISTRIBUTION LINES—Cumberland Electric Membership Corp., Clarksville, 334 mi. rural distr. lines and sys. imprvs., Montgomery Co., **$1,575,000.** CD **8/12/48.**

▲ **Texas**—GAS LINE-El Paso Natural Gas Co., Bassett Tower, El Paso, 108 mi. 24 in. gas line from area Midland to Wasson Field in southwest Yoakum Co., **$3,875,000;** 6½ mi. 16 in. gas line from Driver Field Plant to main line connection, Midland Co., **$145,000.** CD 7/20/45.

▲ **Texas, Oklahoma, Kansas, Nebraska, Iowa, Minnesota and South Dakota**—GAS MAIN—Northern Natural Gas Co., Aquila Court Bldg., Omaha 1, Neb. First year proposed construction, 226½ mi. main line gas main addns., expansion of capacity **$40,070,000,** 42,800 h.p. compressors **$5,500,000;** Second year proposed construction, 215 mi. main gas lines addns., expansion of capacity existing line **$20,500,000** 30,800 h.p. compressors **$3,750,000.** CD 9/22 under Nebraska, Iowa, Minnesota, South Dakota.

Tex., Fort Worth—TELEVISION STATION—Texas State Network, Inc., (KFJZ), 1201 W. Lancaster Ave., television station. **$535,000.** Commercial Radio Equipment Co., 1319 F St. N. W., Wash., D. C., consult. engr.

▲ **Tex., Houston**—PARKS—Harris Co., c/o Comrs. Court, Court House, bond election Nov. 4, municipal parks. **$1,500,000.** L. Fugate, city engr. CD 9/16.

Tex., Lubbock—TELEVISION STATION—Texas Telecasting, Inc., 3601 Avenue H, Lubbock, television station, **$469,000.** McIntosh & Inglis, Wyatt Bldg., Wash., D. C., consult. engrs.

Tex., San Antonio—TELEVISION STATION—Bexar County Television Corp. (KABC), Milam Bldg., television station, **$574,000.** Commercial Radio Equipment Co., 1319 F St. N. W., Wash., D. C., consult. engr.

Tex., San Antonio—TELEVISION STATION—Sunshine Broadcasting Co. (KTSA), Avenue E at 3rd St., television station, **$863,000.** Jansky & Bailey, Natl. Press Bldg., Wash., D. C., consult. engrs.

Va., Richmond—TELEVISION STATION—Richmond Newspapers, Inc. (WRNL), 111 N. Fourth St., television station. **$721,000.** Jansky & Bailey, Natl. Press Bldg., Wash., D. C., consult. engrs.

▲† **Wash., Seattle**—STORAGE PLANT—P. Wks. Office, Thirteenth Naval Dist., 1611 W. Wheeler St., aviation gasoline and jet-fuel bulk-storage plant, **$2,240,000.**

Puerto Rico, San Juan—TELEVISION STATION—El-Mundo Broadcasting Corp. (WKAQ), Box 1072, San Juan, television station, **$468,000.** George C. Davis, Munsey Bldg., Wash., D. C., consult. engr.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Harris Structural Steel Co., Inc., 419 Fourth Ave., New York, N. Y. CA **$2,879,648**, est. $2,230,000. superstructure multi-span truss bridge across Merrimack River, U 62 (8), Amesbury-Newburyport. CD 8/15, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Boston Housing Auth.**, 230 Congress St., Boston, Mass., rejected bids 150 housing units, Pope's Hill Section, Proj. Mass. 2-10, Dorchester, BOSTON, MASS. LB. **$1,858,000**. CD 9/24, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
October 31, Pennsylvania
STREETS AND ROADS
October 30, 31, Pennsylvania November 6, New York

▲ † **N. Y., Rome**—GROUND ELECTRONICS STORAGE—11/18—U. S. Eng., 80 Lafayette St., New York, Zone 13, ground electronics storage and overall facilities at Griffiss Air Force Base, Eng 30-075-53-127. $2,370,000. Plans deposit $15. CD 9/14/51.

BIDS ASKED—BUILDINGS

▲ **Md., Bainbridge**—HOUSING—B.A. 10/30—Fifth Naval Dist., P. Wks, Officer, Norfolk, construct, manage, and finance, Proj. 052-80010 Navy No. 1, 625 brick, concrete housing units Proj. 052-800-11, Navy No. 2, 624 brick, concrete housing units. $7,500,000. Hal A. Miller, 2118 Maryland Ave., Baltimore, archt. CD 8/15/51.

▲ **N. Y., Forest Hills**—SCHOOL—B.A. 11/6—Bd. Educ., Bureau Constr., 49 Flatbush Ave. exten., Brooklyn, Zone 1, general constr., plumbing and drainage, heating and ventilating, electrical work and lighting fixtures for new Junior High School 190, Proj. E-694, Austin St. and 68 Ave. $2,665,765. Plans deposit $27 general constr., $8 plumbing, drainage, heating and ventilating; $9 each electrical and lighting fixtures.

▲ **Md., Indian Head**—HOUSING—B.A. 11/12—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., construct, manage and finance 379 housing units, U. S. Naval Powder Factory. Plans deposit $50. Milton J. Prassas, 1737 Harvard St. N.W., Wash., D. C., archt. CD 7/24, under LB.

▲ **Pa., Scranton**—HOUSING—B.A. 11/12—Scranton Housing Auth., at Valley View Terrace, Scranton, 34 buildings, 250 units of dwellings, administration bldg., etc. of low-rent housing, Proj. PA-3-2. Plans deposit $50. John J. Howley, 101 E. Drinker St., Dunmore, registered archt.

▲ **Md., Baltimore**—HOUSING—B.A. 11/13—Baltimore Housing Auth., 709 E. Eager St., First Phase demolition and clearing Fayette Street Housing, 23 buildings incl. seven 12 story elevated apartment bldgs., 2 story community bldg., parking area on 16 acres, Total est. $8,000,000. Plans deposit $10. Palmer, Fisher, Williams & Nes, 1020 St. Paul St., archts. Van Rensselaer Saxe, 1701 St. Paul St., struct. engr. Egli & Gompf, 1019 N. Calvert St., mech. engrs.

▲† **D. C., Wash.**—RECEIVING—B.A. On Or About 11/24—General Services Admin., Public Building Service, General Services Bldg., 19 and F Sts. N. W., Wash. 25, D. C., Receiving Building R1 and R2, St. Elizabeths Hospital. $4,300,000; adv. ENR 10/23.

▲ **N. Y., Geneva**—HOUSING—B.A. About 1/15—U. S. Eng., 80 Lafayette St., New York, Zone 13, construct, manage, finance, 500 unit Wherry Housing, at Sampson Air Force Base. Approx. $5,000,000. Backus, Crane & Love, 232 Delaware Ave., Buffalo, archts. CD 12/12/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW YORK—New York State Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,

Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y. CA. **$894,802**, 3 highway grade separation structures and misc. work totaling 1.17 mi. on Sunken Meadow Spur Parkway, Suffolk Co. Bids Aug. 21. CD 8/25, under LB.

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany,

Potter-DeWitt Corp., Pavilion, N. Y. CA. **$1,226,786**, est. $1,229,000, 3 span wheel deck girder bridge, grading, etc. 1.56 mi. Sect. C, of Lake Ontario State Parkway, from Naitou Rd. southeasterly to Long Pond Rd., Monroe Co.;

The Lane Constr. Corp., 37 Colony St., Meriden, Conn. CA. **$1,169,412**, est. $1,374,000, railroad grade separation structure, two hy. grade separation structure stream bridge, 1.19 mi. access road, etc., grading, draining 0.96 mi. Thruway, sect. of New York Thruway between Oneida and Verona, Madison and Oneida Counties;

D. W. Winkelman Co., Inc., Heffernan Bldg., Syracuse, N. Y. CA. **$1,888,505**, est. $1,893,000, 450 ft. span deck girder bridge, hy. grade separation structure, etc. 80 mi. paving 400 ft. twin 25 ft. concrete arteries of Thruway, Van Vleck Rd. Connection, reconstruction 0.46 mi. Baldwinsville-State Fair Rd. between Warners and Rte 370, Onondaga Co.;

D. A. Collins, Mechanicville, N. Y. CA. **$1,508,975**, est. $1,761,000, 623 ft. deck truss bridge to carry New York State Thruway over Normanskill, incl. paving 0.12 mi. Thruway approaches, etc., Albany Co. Grand total $5,793,678. Bids Sept. 4. CD 9/9, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany.

Potter-Dewitt Corp., Pavilion, N. Y. CA. **$2,056,051**, est. $2,209,000. 6.4 mi. New York State Thruway, Ont. Sect. Sub 4 and 5 A (Montezuma-Port Bryon); (Port Byron-Conquest), S.H. 8087; Montezuma-Port Byron, S.H. 5610, Weedsport-Cato, SH 686; Greene St. connection; Town Rd. and Marginal Rd., North of Port Byron, O.T. 52-11P, R.C. 52-78, S.T. 52-17, Cayuga Co. Bids Aug. 7. CD 8/11, under LB.

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany,

C. D. Murray Co., Inc., Lafayette Bldg. Syracuse, N. Y. CA **$1,456,332** est. $1,583,000, b. conc. reconstr. Rte. 15, partially on new alignment, from New York-Pennsylvania State Line northeasterly to point 1½ mi. south of Presho, incl. const. 2 bridges, Steuben Co.;

The Lane Constr. Corp., 37 Colony St., Meriden, Conn., CA **$4,132,907**, est. $5,276,000, c. conc. 0.98 mi. previously graded Geneva Lake Front Arterial, incl. grade separations structures at New York Central R.R. and at Main St. Crossing, Ontario Co.;

Tuckahoe Constr. Co., Inc., 116 Columbus Ave., Tuckahoe, N. Y. CA **$1,562,074**, est. $1,566,000, b. conc. reconstr. 7.29 mi. Rte. 52, partially on new alignment from Liberty westerly to Youngsville, incl. 4 bridges, Sullivan Co. Grand total $7,151,313. Bids Sept. 4 CD 9/9, under LB.

▲ **NEW YORK**—New York State Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany

Hudson Contr. Corp., 139 St. and N. Conduit Ave. South Ozone Park, N. Y. CA **$1,849,905**, constr. 5.32 mi. sect. of Sunrise Hy. Extens. from Great River eastward to Broadway, Suffolk Co.;

Dan Bar Contg. Co. Inc., 220 Pulaski St., Syracuse, N. Y. CA **$1,057,077**, reconstr. 11.21 mi. Rte. 20 from point approx. 1 mi. each of Clintonville easterly to Lafayette, Onondaga Co.;

C. P. Ward, Inc., 700 Hollenbeck St. Rochester, N. Y. CA **$1,289,562**, b. conc. 0.47 mi. Inner Loop Arterial from intersection of Central Ave. and Front St. southwesterly on new location to Plymouth Ave. and then southeasterly to Main St. West, Monroe Co. Grand total $4,196,544. Bids Aug. 21. CD 8/25, under LB.

DiMarco & Ciccone, 151 E. Post Rd., White Plains, N. Y. CA **$827,900** Contrs. 1 and 2, sewers, south of West Church St. and Pumping Station, ELMIRA, N. Y. Town, Town Hall, 1223 W. Water St., Elmira, N. Y. Bids May 28. CD 6/18, under LB.

▲ **C. B. Constr. Co.**, 1121 Frankford Ave., Phila., Pa. LB **$1,381,650**, Central Schuylkill West Side Intercepting System, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Oct. 1. CD 9/9.

† **Trueland Electric Co.**, 1715 Lehighway St., Arlington. Va. CA **$627,750**. electric distr. sys., new ring sys., manholes, sub-station, transformer stations, street lighting, U. S. Naval Experiment Station, Spec. 31661, ANNAPOLIS, MD. P. Wks. Office, U. S. Naval Academy, Annapolis, Md. CD 9/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Depot Constr. Corp.**, 119 W. 57 St., New York 19, N. Y. CA. **$12,828,600**, general constr.;

Joseph F. Egan, 3013 Grand Concourse, New York 58, N. Y. CA **$2,168,000**, plumbing;

Dierks Heating Co., 43-32 33 St. Long Island City, N. Y. CA **$2,259,120**, heating;

Rao Elec. Equipment Co., 150 E. 41 St., New York 17, N. Y. CA **$2,143,200**, electrical work for Elmhurst General HOSPITAL (New York City Hospital) ELMHURST, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Grand total $19,398,920. Bids Aug. 13. CD 8/21, under LB.

▲ **Country Village Homes**, c/o Oscar I. Silverstone, archt., 153 Pierrepont St., Brooklyn 2, N. Y. Owner Builds. **$1,500,000**. 137 HOUSES, on 30 acre tract on South Oyster Bay Rd., HICKSVILLE, N. Y.

▲ **Saxon Woods Park Homes**, c/o Angelo M. Riccio, archt., 227½ Harrison Ave., Harrison, N. Y. Owner Builds. **$1,500,000**. 130 HOUSES on 32-acre tract, Mamaroneck Ave., MAMARONECK, N. Y.

▲ **Old Britton Estates Homes**, c/o Alwin Cassens, archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. **$1,400,000**. 80 HOUSES on tract at Old Britton and Little Neck Rds., NORTH BELLMORE, N. Y.

J. Alexander Stein, Inc., 103 C. 125 St., New York 25, N. Y., CA, **$694,000**, 112-unit HOUSING, Project N. J. 12-3, BAYONNE, N. J. Bayonne Housing Auth., 541 Broadway, Bayonne, N. J. Bids Sept. 17. Barnet D. Singer, 15 Benmore Terrace, Bayonne, N. J., archt. CD 8/28.

McCloskey & Co., 1620 W. Thompson St., Phila., Pa. LB **$834,000**. Anna B. Pratt Elementary SCHOOL, PHILA., PA. Bd. Educ., 21 and Winter Sts., Phila., Pa. Carroll, Grisdale & Van Allen, 204 W. Rittenhouse Square, Phila., Pa., archts. CD 2/8/45.

▲ **S. H. Evert Co., Inc.**, Bloomsburg, Pa., CA **$1,032,000**. general contr., alterations, expansion at Edison Junior HIGH SCHOOL, 19 and Chestnut Sts., HARRISBURG, PA. Harrisburg School Bd., 121 Chestnut St., Harrisburg, Pa. Bids Sept. 26, awarded Oct. 10. CD 10/1, under LB.

Chas. R. Scrivener & Co., 2405 S. Hilton St., Baltimore, Md. CA **$896,700**, est. $750,000. 1 story, brick block Consolidated Colored SCHOOL wing addn., between Aberdeen and Havre de Grace, BEL AIR, MD. Harford Co. Bd. Educ., Gordon St., Bel Air, Md. CD 10/1, under LB.

Davis Constr. Co., 320 W. 24 St., Baltimore, Md. CA Approx. **$400,000**. 200x400 ft., rein.-con., steel, brick WAREHOUSE and REFRIGERATION PLANT, LANDOVER, MD. Merchants Terminal Corp., Monument St., Baltimore, Md. Van Rensselaer Saxe, 1701 St. Paul St., Baltimore, Md., struct. engr., Egli & Gompf, Inc., 1019 N. Calvert St., Baltimore, Md., mech. engr. V. C. Patterson & Assoc., York, Pa., refrig. engrs.

▲ **Valleywood Constr. Co.**, 817 Ninth St. N. W., Wash., D. C. Owner Builds. Est. **$1,500,000**. one hundred and fifty 1 story, 24x36 ft., frame RESIDENCES, Valleywood Dr., SILVER SPRING, MD.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
December 19, Alabama
STREETS AND ROADS
December 19, Alabama

Ala., Phenix City—B.A. After 11/1—City, WW imprvs. $600,000. Polglaze & Basenberg, 812 S. 27 St., Birmingham, engrs. (**Correction**—engineers). CD 9/16.

BIDS ASKED—BUILDINGS

▲ **Va., Alexandria**—HOUSING—B.A. 11/6—Alexandria Redevelopment & Housing Auth., 131 Belvoir St., 148 two story brick, concrete masonry Public Housing Units, VA-4-4. $1,200,000. Joseph H. Saunders, Jr., 121 S. Columbus St., archt. CD 9/8.

▲ **Tenn., Memphis**—HOUSING—B.A. 12/1—Memphis Housing Auth., 264 N. Lauderdale St., 572 housing units for Negroes. $7,100,000. CD 5/1/51.

▲ **Tenn., Memphis**—HOSPITAL—B.A. 12/4—Baptist Hospital, Madison Ave., hospital addn. $5,500,000. Walk C. Jones-Walk C. Jones, Jr., 1215 Poplar St.. archts. CD 2/6.

▲ **Va., Norfolk**—HIGH SCHOOL—Bids Asked—Norfolk County School Bd., 148 Granby St., 1 and 2 story, brick, concrete masonry Norfolk County High School. $1,400,000. Plans deposit $75. Walford & Wright, 103 E. Cary St., Richmond, archts. CD 8/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Regent Contg. Co.**, 1122 19th St. N.W., Wash., D. C. LB **$2,700,000**. 8 barracks and one subsistence bldg., Naval Auxiliary Air Station, NOY 74886, Spec. 35797. OCEANA, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Oct. 14. CD 10/2.

† **J. W. Hunter**, Box 1506, Wilmington, N. C. CA **$695,113**, enlisted men's subsistence bldg., group, squadron warehouse and gate house at Marine Corps Air Facility, NOY 71506, CAMP LEJEUNE, N. C. Dpt. Navy, Officer in Charge of Construction. Box 365, Naval Base, S. C. Bids Oct. 2. CD 10/8, under LB.

Bethlehem Steel Co., Healey Bldg., Atlanta, Ga. CA **$578,951**. Contr. 340-W furnishing steel water pipe, NEW ORLEANS, LA. Sewerage & Water Bd., 523 Carondelet St., New Orleans, La. CD 5/3/51, under Sewers, etc.

▲ **Boh Bros. Constr. Co.**, 2400 Cypress St., New Orleans, La. CA **$1,265,523**. Contr. 247-D, approx. 5,450 lin. ft. 16 to 28 ft. rein.-con. lined and covered canal, NEW ORLEANS, LA. Sewerage & Water Bd., 526 Carondelet St., New Orleans, La. CD 10/8, under LB.

▲ **R. P. Farnsworth & Co., Inc.**, 1515 S. Salcedo St., New Orleans, La., LB **$1,565,393**, 5 mi. sewer extens. to divert sewerage now dumped in Tennessee Chute, into the Mississippi River, known as the Nonconnah Proj., MEMPHIS, TENN. U. S. Eng., P.O. Box 97, Zone 1. Bids Oct. 7. CD 9/4.

BUILDINGS

LOW BIDS AND CONTRACTS

Thomas W. Goodman, Inc., Parham Rd., Richmond, Va., Owner Builds. Approx. **$500,000**. 50 RESIDENCES, RICHMOND, VA.

Daniel Constr. Co., P.O. Box 2286, Greenville, S. C., CA, **$750,000**, PLANT Addns., SAVANNAH, GA. Southern Paperboard Corp. c/o J. E. Sirrine & Co., engrs., 215 Main St., Greenville, S. C. Bids Sept. 22. CD 8/1.

Brice Bldg. Co., P.O. Box 1028, Birmingham, Ala., LB, **$626,327**, Junior High SCHOOL, BESSEMER, ALA. City Bd. Educ., Bessemer, Ala. Bids Oct. 10. CD 9/16.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
October 28, Ohio
STREETS AND ROADS
October 27, Ohio

BIDS ASKED—BUILDINGS

Ind., Hammond—SCHOOL—B.A. 11/3—School City of Hammond, 5935 Hohman St., 2 story, James Whitcomb Riley Elementary School, $600,000. Turner & Turner, 5945 Hohman St., archts. CD 8/15.

▲ **Mich., Ecorse**—SCHOOL—B.A. 11/10—Ecorse Twp., Irvin Friend, chn. School Bd., 2 story, bcmnt., brick, steel high school addn. $1,650,000. Plans deposit $5, refundable. Bennett & Straight, 15624 Michigan Ave., Dearborn, archts. CD 6/30.

▲ **Mich., Lapeer**—HOSPITAL—B.A. 11/12—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, brick, steel hospital, Lapeer State Home and Training School. $2,365,000. Plans deposit $25, Frantz & Spence, 118 N. Washington St., Saginaw, archts. CD 1/23/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **M. J. Doyle**, 2480 Elston St., and **Paschen Contractors, Inc.**, 2739 Elston St., both Chicago, Ill., LB. **$3,897,325**; Alt. **$3,696,050**, Calumet Intercepting Sewer, Villages of Oaklawn, Alsip, Twps. of Worth and Stickney, CHICAGO, ILL. Sanitary Dist. of Chicago, 910 S. Michigan St., Chicago, 5, Ill. Bids Oct. 2.

Jeffress-Dyer, P.O. Box 378, Ann Arbor, Mich. CA **$939,900**. women's swimming pool facility, ANN ARBOR, MICH. University of Michigan, Harlan H. Hatcher, pres., Ann Arbor, Mich. Awarded Oct. 13. CD 9/30, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John J. Harte Co.**, 284 Techwood Dr. N. W., Atlanta, Ga., CA. Approx. **$5,000,000**. Design and construct fertilizer PLANT, SOUTH POINT, O. Allied Chemical & Dye Co. (Nitrogen Div.) 40 Rector St., New York 6, N. Y. CD 7/16.

Victory Housing, Inc., Beech Grove, Ind., Owner Builds, **$700,000**, 70 HOMES, Hanna Ave. and Sherman Dr., BEECH GROVE, IND.

Campbell Lowrie Lautermilch, 400 W. Madison St., Chicago, 6, Ill., CA. **$600,000**, 50,000 sq. ft. steel, concrete, brick FACTORY, LINCOLNWOOD, ILL. Vandercook & Sons, Inc., 900 Kilpatrick St., Chicago, Ill. Johnson & Johnson, 111 W. Washington St., Chicago, 2, Ill., archts. Awarded Oct. 7.

▲ **Heinke Constr. Co.**, Riverside and 44 Pl., Lyons, Ill., CA. **$1,200,000**, 100 HOMES, NAPERVILLE, ILL. Kroehler Homes Development, Inc., c/o Kroehler Furniture Co., Naperville, Ill. C.' W. Marshall, 53 W. Jackson Blvd., Chicago, 4, Ill., archt. Awarded Oct. 2.

Power Constr. Co., 212 S. Marion St., Oak Park, Ill., CA. **$994,500**, Neal Junior High SCHOOL, curbs, walks, driveways, NORTH CHICAGO, ILL. School Dist. 63, 1110 18 St., North Chicago, Ill. Bids Sept. 26, awarded Oct. 1. CD 10/3, under LB.

▲ **School District 217**, Summit, Ill., rejected bids Sept. 24, Argo Community High SCHOOL, SUMMIT, ILL. Est. **$1,615,000**, CD 9/12.

▲ **A. F. Fairbank**, 614 Joliet St., West Chicago, Ill., CA, **$1,500,000**, FACTORY addn., WEST CHICAGO, ILL. Lindsay Light & Chemical Co., Factory St., West Chicago, Ill. Frazier & Raferty, 315 James St. Geneva, Ill., archts. Awarded Oct. 8.

▲ **Bryant & Detwiler Co.**, 2304 Penobscot Bldg., Detroit, Mich. CA. **$16,870,000**, superstructure 14 and 20 story, bsmnt., sub-bsmnt., brick, steel, stone, concrete CITY-COUNTY BLDG., Woodward and Jefferson Sts., DETROIT, MICH. City, Mayor Cobo, chn., Detroit Wayne County Bldg. Auth., Detroit, Mich. CD 10/7, under LB.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
October 28, 30, Kansas   October 31, Missouri
STREETS AND ROADS
October 30, Kansas   October 31, Missouri

BIDS ASKED—BUILDINGS

Kan., Manhattan—VETERINARY HOSPITAL—B.A. 11/3—Kansas State College, c/o Ed. Burge, bus. mgr., State House, Topeka, 3 story, stone veterinary hospital addn., incl. stables, $515,000, John A. Brown, State House, Topeka, state archt. CD 3/5/52.

N. M., Gallup—STEAM GENERATING UNIT—B.A. 11/6—City, City Hall, steam generating unit for power plant expansion and electric distr. sys. $800,000. Rocky Mountain Eng. Co., 325 Wilda Bldg., Denver, Colo., engr. CD 7/11.

Ia., Algona—COURT HOUSE—B.A. 11/18—Kossuth Co., Court House, court house, $500,000. Dougher, Rich & Woodburn, 302 Garver Bldg., Des Moines, archts. CD 7/31-51.

▲ **Tex., Dallas**—SCIENCE—B.A. 12/3—The University of Texas, c/o Bd. Regents, Main Bldg. 205, Austin, base science bldg. (Southwestern Medical School of University of Texas). $3,250,000. Plans deposit $50. Mark Lemmon, 201 Thomas Bldg., archt. CD 8/14/51.

▲ **Ia., Fort Madison**—HOSPITAL WING—Bids Asked—Sacred Heart Hospital, Fort Madison, hospital wing. $1,430,450. Morgan & Gelatt, 217 F. & M. Bank Bldg, Burlington, archts. CD 10/9.

▲ **Kan., Manhattan**—STUDENT UNION—B.A. About 12/1—Kansas State College, c/o Ed. Burge, bus. mgr., State House, Topeka, student union bldg. $1,250,000. Extended date, John A. Brown, state archt. CD 9/26.

▲ **Tex., Silsbee**—LUMBER MILL—Bids Asked—Kirby Lumber Corp. Kirby Bldg., Houston, consolidated lumber mill, 325,000 bd. ft. kiln-dried finished lumber daily capacity. $10,000,000. H. E. Bovay, Jr., M. Esperson Bldg., Houston, archt. CD 10/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Seth E. Giem & Assoc.**, Land Bank Bldg., Springfield, Mo. CA **$687,713**. bachelor officers quarters, officers' mess, Grandview Air Force Base, Inv. 23-028-53-6, GRANDVIEW, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. CD 9/15, under LB.

† **Roberts Constr. Co.**, 1018 Trust Bldg., Lincoln, Neb. LB **$694,674**, with hot mix; **$668,264**, with road mix, for utilities at Lincoln Air Force Base, Inv. 25-066-53-34, LINCOLN, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Oct. 3. CD 9/11.

▲† **Storms-Frew Constr. Co.**, 6601 E. 37 St., Kansas City, Mo. CA **$2,117,718**. restoration of flood protection structures, facilities, Argentine Unit, Part I, Sec. II, at Kansas River, Inv. 23-028-53-45, KANSAS. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. CD 9/22, under LB.

† **M. W. Watson Constr. Co.**, National Bank of Topeka Bldg., Topeka, Kan. CA **$638,230**. training bldg. at Forbes Air Force Base, Inv. 23-029-53-4, TOPEKA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. CD 9/5, under LB.

Brown & Root, Inc., 438 E. 13 St., Brownsville, Tex. CA **$728,794**, Units 47 through 94, asph. street paving, BROWNSVILLE, TEX. City, Brownsville, Tex. Bids Sept. 11, awarded Oct. 8. CD 9/24, under LB.

▲ **W. G. Cullum**, Great Natl. Life Bldg., Dallas, Tex., CA **$681,542**, Proj. A; CA **$546,942**, Proj. B, of 48 in. water main from Carrollton to Walnut Hill-Hillcrest, etc., DALLAS, TEX. City, City Hall, Main and Harwood Sts., Dallas, Tex. Bids Oct. 7. CD 9/30.

▲† **U. S. Eng.**, 100 W. Vickery St., Fort Worth, Tex. rejected bids Sept. 16, extens., 110,000 sq. yd. either asph. or rein.-con. runway, Approx. **$450,000**; maintenance apron, 50,000 sq. yd. heavy and light duty asphalt or rein.-con. pavement, incl. drainage structures, Approx. **$375,000**; 30,000 sq. yd. either asphalt or rein.-con. standard aircraft warm-up apron, approx. **$275,000**; 139,000 sq. yd. either asphalt or rein.-con. taxiway extens., approx. **$500,000**, at Corswell Air Force Base, FORT WORTH, TEX. CD 7/31.

▲† **Campbell & Kay**, Box 4091, Station A, Albuquerque, N. M. LB **$1,339,427**. Lots 1 to 16, range instrumentation sites, White Sands Proving Ground, Serial No. Eng 29-005-53-24, LAS CRUCES, N. M. U. S. Eng., Box 1538, 2108 E. Central Ave., Albuquerque, N. M. Bids Oct. 9. CD 9/11.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **H. Shanedling Sons Corp.**, 1201 Turners Cross Rd. S., Minneapolis, Minn. CA Est. **$5,000,000**. SHOPPING CENTER, Richfield Village, at 66 St. and Nicollet Ave., MINNEAPOLIS, MINN. J. C. Penney Co., 330 W. 34 St., New York, N. Y. CD 10/8.

▲ **Naugle-Leck, Inc.**, 714 Baker Bldg., Minneapolis, Minn. CA **$1,000,000**. general contract synagogue TEMPLE and SCHOOL at site, ST. PAUL, MINN. Mount Zion Hebrew Congregation, L. Pistner, chn. Bldg. Comn., Summit Ave. and Syndicate St., St. Paul, Minn. Bids Sept. 27. CD 9/17.

▲ **John Snyder & Sons, Inc.**, Independence, Mo. CA **$2,235,000**. est. $2,000,000. 385 HOUSES, Platinum Acres, 1 mi. north of INDEPENDENCE, MO. Blue Valley Development Co., c/o Earl Maness, operator, 11100 Truman Rd., Independence, Mo. Awarded Oct. 10. CD 9/3.

▲ **Universal Constr. Co.**, Scarritt Bldg., Kansas City, Mo. LB **$1,013,477**. women's and men's DORMITORIES, WARRENSBURG, MO. Central Missouri State College, c/o Geo. W. Diemer, pres., Warrensburg, Mo. Bids Oct. 7. CD 9/30.

▲ **Catalytic Constr. Co.**, 1528 Walnut St., Phila., Pa., CA, Ammonia and Urea Fertilizer PLANT;

Girdler Corp., 224 E. Broadway, Louisville, Ky., CA design and erect gas reforming and purification equip. LAPLATTE, NEB. Total est. **$25,000,000**. Allied Chemical & Dye Corp. (Nitrogen Div.), 40 Rector St., New York 6, N. Y. CD 5/13.

▲† **Cowen Constr. Co.**, Shawnee, Okla. and **Secor Building Co., Inc.**, 20 N.E. 26 St. Oklahoma City, Okla. CA **$2,111,999**. GSA WAREHOUSE 1, 2 and 3, pump house, reservoir at air force depot, OPEKA, KAN. General Services Admin. Public Bldgs. Service, 19 and F Sts., Wash., D. C. CD 9/12, under LB.

Cowdin Bros., 411 S. Haskell St., Dallas, Tex., CA. Approx. **$875,000**. 11 story Burt OFFICE Bldg. addn., DALLAS, TEX. Leo F. Corrigan, Mercantile Bank Bldg., Dallas, Tex. White & Prinz, 1330 N. Industrial Blvd., Dallas, archts. Chappell & Brenneke, Burt Bldg., Dallas, Tex., engrs.

Gasoline Constr. Co., N. Esperson Bldg., Houston, Tex. CA Approx. **$875,000** Gas PLANT expansion, HAWKINS, TEX. Natural Gasoline Corp., Hawkins, Tex. CD 10/14.

Crawford Constr. Co., 203 N. 16 St., McAllen, Tex., LB Base Bid **$565,652**. Municipal HOSPITAL, MCALLEN, TEX. City, McAllen, Tex. Blucher & Naismith, 1111 N. Mesquite St., Corpus Christi, and Herman Blum, 2812 Fairmount St., Dallas, Tex., engrs. R. Colley, 310 S. Tancahua St., and Ford & Rogers, 228 E. Martin St., San Antonio, Tex., archts. Bids Oct. 7.

▲ **Templeton & Cannon**, Box 548, San Angelo, Tex., CA **$1,023,007**. CHURCH, MIDLAND, TEX. First Baptist Church Congregation, Midland, Tex. CD 7/30, under LB.

Gulf Oil Corp., Port Arthur, Tex., Purchase and Hire. **$507,600**, petroleum REFINERY imprvs. and expansion, PORT ARTHUR, TEX. CD 8/19.

▲ **Robert E. McKee, Contractor, Inc.**, 1918 Texas St., El Paso, Tex., CA 80 MAGAZINES and FOUR BLDGS., Wingate Ordnance Depot, GALLUP, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. CD 8/28/51.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
November 5, 6, 12, 13, California

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **CALIFORNIA**—Bureau P. Rds., Dpt. Commerce, **1101** Flood Bldg., San Francisco,

Kenworthy & Patterson, 1505 W. Walnut St., Stockton, Calif., LB, **$529,716**, clearing, grading, etc., 4.29 mi. in Klamath River, Six Rivers National Forest, Humboldt Co. Bids Oct. 9. CD 9/92.

† **McDonald Bros.**, 6014 W. Adams Blvd., Los Angeles, Calif., CA, **$632,356**, engine repair and assembly shops, Edwards Air Force Base, Eng 04-353-53-25, MUROC, CALIF. U.S. Eng. 751 S. Figueroa St., Los Angeles, Calif. Bids Oct. 7, awarded Oct. 8. CD 9/24.

Owltruck & Constr. Co., 500 S. Alameda St., Compton, Calif., CA, **$684,480**, clearing, stripping and grouting Cherry Dam site, under Hetch Hetchy Contr. 252, SAN FRANCISCO, CALIF. P. Utilities Comn., City Hall, San Francisco, Calif. Bids Sept. 23, awarded Oct. 7. CD 9/30, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Ford J. Twaits Co., Morrison-Knudsen Co. & Macco Corp.**, 449 S. Beaudry St., Los Angeles, Calif., LB, **$1,177,263**, addnl. buildings for Marine Corp. Artillery Training Facility, NOY 74048, Spec. 35083, TWENTYNINE PALMS, CALIF. Dpt. Navy, San Diego, Calif. Bids Oct. 8. CD 9/17.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Kuney-Johnson Co.**, 235 9th Ave., N. Seattle, Wash. CA **$2,154,530**, est. $1,764,278, fourteen 8-family frame buildings, utilities, Eng 95-507-53-4. Ladd Air Force Base, ALASKA. U. S. Eng., 3013 Arcade Bldg., Seattle 1, Wash. Bids Oct. 1. CD 10/8, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., St. Hubert—HANGAR, etc.—B.A. 10/28—M. P. McAndrew, engr., Defence Constr. Ltd., 1247 Guy St., Montreal, hangar, aprons, taxiway and drainage, R.C.A.F. Station, Job 2247, $900,000. Plans deposit $100.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Reuben R. Dennis**, 125 Kilbarry Rd., Toronto, Ont., Own Forces, **$5,000,000** 10 story, concrete, steel brick APARTMENT, TORONTO, ONT. CD 10/14.

LATIN AMERICA

BIDS ASKED—BUILDINGS

▲ **Guatemala, Zacapa**—HOSPITAL—Bids Asked—Dpt. Communications & P. Wks., C. A. Sanodval, Minister, Guatemala City, hospital. $1,500,000.

(Proposal Advertisements see pp. 104 to 107)

UNIT PRICES

Lincoln Tunnel shaft, New York City

A new tube to add two lanes to the existing four lanes of the Lincoln Tunnel connecting Manhattan to Weehawken, N. J. got its start with the Port of New York Authority award to the Gull Contracting Co. of a $2.5-million contract for work on the New York land shaft and land section No. 1 on the New York side. The shaft will be the foundation for the tube's New York ventilation building and will contain a section of the tunnel roadway. It is to be 130 ft long, 60 ft wide, and 85 ft deep, pointing east from a point about 75 ft east of Twelfth Ave. Initially it will be used for delivery of materials into the river tube.

The land section runs 360 ft east of the shaft and will be constructed by the open cut method, the last section requiring an excavation 75 ft deep and 35 ft wide. The frame will be of structural steel and the bottom will have a reinforced concrete lining.

When complete in 1957, the entire tunnel will measure 7,944 ft from portal to portal and 5,400 ft between the two shafts. The external tunnel diameter will be 31 ft and the width of the roadway, 21 ft 6 in.

Wage rates include: carpenters, $3.24 per hr, 7-hr day; hoisting engineers, $3.50 per hr; structural iron workers, $3.50 per hr; all the previous including 3% payment into the welfare fund and 6 paid holidays; and laborers, $2.05 per hr. John M. Kyle, Jr. is chief engineer, Port of New York Authority.

Bidders include:

1C	Gull Contr. Co., Inc., Flushing, N. Y.	$2,546,925
2	National Structures Corp., N. Y., N. Y.	2,694,759
8	Del Balso Const. Corp., N. Y., N. Y.	3,913,800

Bids: 8-26-52

Items	Unit	Quantity	Unit Prices 1 C	Unit Prices 2
Classified work				
Earth exc	cy	33,500	$20.00	$16.00
Rock exc	cy	27,200	20.00	30.85
Cement	bbl	19,600	4.50	4.50
Concrete	cy	10,300	40.00	38.55
Mem wtrprfng—2 ply	sy	2,100	2.00	1.00
3 ply	sy	3,300	3.00	3.00
4 ply	sy	3,600	4.00	4.00
Bk-in-mastic wtrprfng	cy	650	100.00	75.00
Dampproofing	sy	445	1.00	1.00
3" block prot	sy	1,600	4.00	2.50
Precast conc forms	sf	6,600	3.00	1.00
Conc block	cf	870	2.00	2.50
Cmt plaster	sf	600	1.00	0.50
Pneumatic mortar	sf	1,750	5.00	4.00
Porous conc. pipe drns.	lf	550	6.00	5.00
Steel drum	lb	117,000	0.35	0.35
Steel pressure dome	lb	3,000	0.70	1.00
Girders, col, ceiling bms & ties rods in stl bent section	lb	1,455,000	0.14	0.14
Tunnel rdwy beams	lb	105,000	0.10	0.14
Tunnel curbs	lf	820	8.00	10.00
Str stl shapes, plates & anchor bolts	lb	20,000	0.50	0.50
Reinf rods	lb	1,010,000	0.16	0.18
Wire mesh	lb	20,000	0.30	0.60
Ceiling hangers	ea	65	80.00	80.00
Copper	lb	500	3.00	4.00
Ceiling tile	sf	7,700	3.00	3.00
Bituminous pavement	sy	3,400	4.20	4.50
Street curbs	lf	1,000	2.00	2.00
Tunnel serv pipe, 8"	lf	500	10.00	10.00
Fresh air flues	ea	69	80.00	100.00
Exhaust air ports	ea	44	60.00	70.00
Air mesrmnt install	ls	1	2,000	1,000
Stl cond, 3/4" dia.	lf	3,000	0.80	1.50
1" dia.	lf	1,500	1.00	1.60
1-1/2" dia.	lf	900	2.00	2.40
2" dia.	lf	1,200	2.00	2.80
2-1/2" dia.	lf	1,200	3.50	3.60
3-1/2" dia.	lf	700	4.50	5.00
4" dia.	lf	1,200	6.00	6.00
Asb cmt cond, 4" dia.	lf	3,700	1.30	1.50
CI tunnel boxes	lb	13,000	1.50	1.00
Classified utility work				
Exc for cl A util	cy	110	10.00	6.00
Exc for cl B util	cy	1,100	5.00	16.00
Conc for cl A util	cy	10	100.00	50.00
Conc for cl B util	cy	300	50.00	70.00
Str stl shapes, plates, blts, & fndr plates for cl B util	lb	3,000	0.50	0.40
CI cstngs for cl B util	lb	600	0.30	0.30
Reinf rods for cl B util	lb	35,000	0.20	0.20
Reset MH cvrs, with frames for cl A util str	ea	2	100.00	50.00
Reset MH cvrs, with frames for cl B util str	ea	7	100.00	50.00
Bk msry for sewer MH	cy	10	100.00	100.00
Vit lng for conc sewr	sf	1,800	1.50	3.00
House sewr connec	ea	1	300.00	350.00
Furn CI water pipe	lb	10,000	0.10	0.12
Lay CI water pipe, 12" dia	lf	550	6.00	5.00
Stl gas pipe by-pass 3" dia	lf	510	4.00	10.00
Stl gas pipe, 6" dia	lf	550	6.00	10.00
Stl ducts, 2" dia	lf	130	2.00	4.00
Tem wood serv boxes, incl maintenance of cables	ls	1	1,000	500.00
Mainten of iron & stl ducts & cables therein	lf	500	3.00	3.00
Unclassified work	ls	1	100,000	79,624

Shore protection New York

A corestone and capstone jetty is under construction by the New York Department of Public Works at Shinnecock Inlet to prevent erosion of the shore and assist in trapping sand contained in litteral drifts. All stone must weigh not less than 160 pounds per cubic foot dry in air and must withstand alternate freezing and thawing and the action of salt water. Corestone must consist of pieces weighing from 5 lbs to 2 tons with small spalls and breakage allowed up to 5%. Capstone must consist of pieces whose weight is from 2 to 12 tons.

Work began in June and must be complete in 460 calendar days. Because of the urgency of early completion, operation has been allowed on a six day basis with working hours extended to 10 per day.

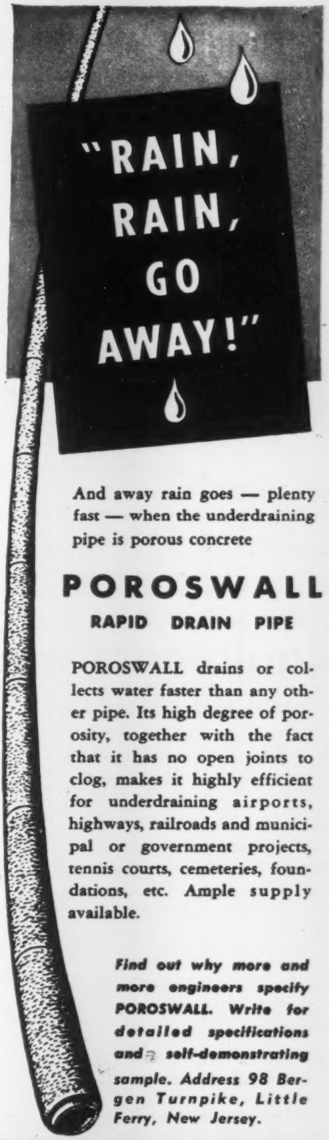
Bidders include:

1C	Northampton Constr. Corp, Westhampton Beach, L. I. New York	$731,640
2	Edward Acker Corp & S. Shore Contrg & Dredg. Corp., Patchoque, New York	752,934
6	Tully B. DiNapoli Inc., Flushing, New York.	902,056

Bids: 5-15-52

Items	Unit	Quantity	Unit prices 1 C	Unit prices 2
Corestone	t	37,000	$13.40	$13.79
Capstones	t	17,600	13.40	13.79

1C	Pioneer Contracting Co., Inc., Memphis	$293,400
2	Forcum-James Company, Dyersburg, Tenn.	257,250


"RAIN, RAIN, GO AWAY!"

And away rain goes — plenty fast — when the underdraining pipe is porous concrete

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RAPID DRAIN PIPE

POROSWALL drains or collects water faster than any other pipe. Its high degree of porosity, together with the fact that it has no open joints to clog, makes it highly efficient for underdraining airports, highways, railroads and municipal or government projects, tennis courts, cemeteries, foundations, etc. Ample supply available.

Find out why more and more engineers specify POROSWALL. Write for detailed specifications and self-demonstrating sample. Address 98 Bergen Turnpike, Little Ferry, New Jersey.

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WALKER CEMENT PRODUCTS COMPANY
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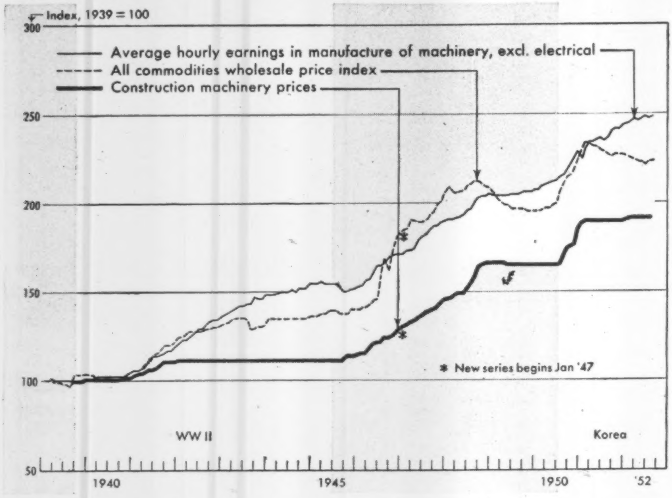


BLS data

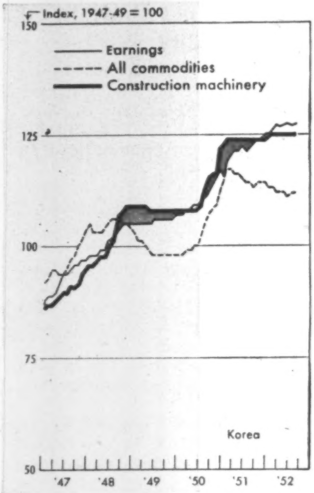


Chart by ENR Business News

Equipment makers caught in price squeeze

Construction equipment manufacturers, who have been saying that they are caught in a squeeze between ceiling prices on their machines and rising costs of labor and materials could marshal some statistical support for their complaint this week.

The Bureau of Labor Statistics' wholesale price and wage indexes support this claim. But the new BLS Construction Machinery Price Index, based on 1947-49 averages, does not reflect the basic trouble. Here's why: These new wholesale price trend series, which began in January, 1947, pin machinery prices and all commodities together on the same base.

Earnings of machinery workers also are pinned into this 1947-49 average. This is illustrated at right on the chart above.

But, in 1947-49, a big gap still existed between the prices the manufacturers received, following World War II price controls, and the higher prices they had to pay for labor and commodities. This is shown at left on the chart above.

(The old BLS price index for construction machines was discontinued after June, 1947. But the new index starts in January of that year, thus a 6-month overlap enables the two price trend series to be joined for the continuous record shown in the chart.)

During World War II, equipment prices, which were held down by price controls, advanced only 11%, while machinery workers' earnings increased 54% and all commodity prices went up 38%. This produced the big gap referred to above.

This was based on 1939 equals 100.

Between the end of World War II controls and current Korea price controls, machinery prices held their own percentage-wise. But, because of this lower starting point, they could not close the gap with costs.

Percentage rises between controls are 70% for machinery prices, 52% for machinery workers' earnings, 68% for all commodities.

In index points, however, the rises where 78 for machinery prices, 80 for workers, and 94 for commodity prices.

Since early 1951, when the Korea price controls went into effect, the Bureau of Labor Statistics all-commodities price trend has gone down. But machinery workers' earnings are 5.5% higher, while all commodities prices are down 3%.

The net result, as of August of this year, is this: since 1939, construction machinery prices are up 91%, while machinery workers' earnings are up 147% and all commodity prices are up 124%.

The old axiom that as steel goes, so go other prices, apparently applies to machinery prices. Since 1939, steel structurals and plate prices are up 83% and 86% respectively and the Iron Age composite price for 10 steel products is up 89%. But, since February, 1951, steel prices have increased 5% as compared with a 1.5% rise in construction machinery prices.

The statistics add up to another pertinent fact: Contractors are getting construction machinery and equipment at prices considerably below the average for all commodities.

Atkinson, Ostrander offer low bid on Dalles bridge

Guy F. Atkinson Co., of Portland, Ore. and Ostrander Construction Co., of San Francisco, were joint low bidders last week on the Dalles Bridge over the Columbia River. Their offer was $2,478,480.

Earlier this month, the two firms won the contract for second stage construction of the $350-million The Dalles Dam (ENR Oct. 16 p. 90).

Wasco County Judge Ward Webber predicted that there will be some delay before the bridge contract is awarded. He pointed out the amount of revenue bonds cannot be determined until a settlement is reached on the old contract for the bonds.

Water, sewer builders see good year

So far this year, waterworks have rolled up a total of more than $169 million in new contract awards, as reported by Engineering News-Record. This is 5% ahead of the 1951 mark, and only 4% behind contract volume in the record year 1950.

Dollar volume of waterworks contracts appears to be riding more or less on a plateau it reached in 1948.

New sewerage construction has been much more dynamic than waterworks. Contracts for 1952 to date total nearly $222 million, down 11% from the record volume in 1951. But contract volume has picked up rapidly since the first quarter when it hit its lowest level since 1949. The third quarter total of $94 million was the highest for any single third quarter on record.

Before the year is up, sewerage contracts may pull closer to the record level of 1951.

• Business looks good—How well the waterworks or sewerage contractor is doing this year depends, to a large extent, upon where he is operating.

Volume is highest in the states west of the Mississippi. There, sewerage contracts for the first nine months of this year hit $60 million, matching the total for the whole year of 1950, and indicating a record year for that region. Waterworks contracts reached $51 million through September, now look like they will match the previous record, set in 1950.

New England is constructing more sewerage projects this year than ever before. So far in 1952, contracts total almost $21 million, as against $18 million for all of 1951, the previous record year. Contracts for waterworks are running at roughly the same rate as last year, amounting to $6 million in the first nine months.

The Far West is also doing better as the total of $32 million for waterworks in the first nine months of 1952 was 10% higher than for all of 1951. New sewerage construction may reach the previous record set in 1949 when contract volume hit $44 million.

Waterworks and sewerage contracts are running behind last year's levels in the Middle Atlantic region and in the Middle West. In the South, sewerage construction is also lower than last year, while new waterworks contracts are about even.

Revenue dictates sewer building

Faced with the problem of making an ambitious construction program jibe with the realities of potential revenues, Rhode Island's Blackstone Valley Sewer District Commission has found a practical answer:

Change original plans and build more interceptor lines—thus getting more paying customers on the line; put aside plans for a disposal plant until later.

The commission got started two years ago (after long years of controversy and planning) on a program to clean up 25 mgd of municipal and industrial wastes produced in the Blackstone Valley. Phase 1 of the project—initial construction of intercepting mains—is completed. Phase 2 was to have included construction of a trunk sewer and treatment plant (ENR Aug. 30, 1951, p. 28); and Phase 3 more interceptor lines.

• Fish, but no money—Phase 1 has already been successful to this point: Flounders are again disporting themselves in the Seekonk River.

But the commission found itself facing an unpleasant financial fact: With $7.8 million worth of trunk sewers and primary treatment works completed, the charges to initial users would be very high, if bonds issued in order to finance the Phase 1 work were to be liquidated out of current revenue.

This was particularly true because original surveys by consulting engineers (Metcalfe & Eddy) anticipated that industrial waste flows would be near 80% of total flows handled. Thus industrial users would carry the brunt of the costs. But textile finishing plants—largest industrial users—hit business doldrums for the last year and a half, and their percentage of use has been far lower than was anticipated.

The Blackstone Valley Sewer District has been faced with other financial snags: Payments by communities have lagged while towns and cities thrashed out the issue of whether to pay out of general funds or out of special assessments; steel shortages, strikes and the like have delayed work and ballooned construction costs to the point that a supplementary bond issue had to be approved in 1950.

• Solution—The commission's answer was divided into two parts, one financial, the other physical.

On the financial side, part of a $7.5-million bond issue for Phase 2 (up for voter approval this November) would be used to meet debt payments until additional users can be hooked on to the line; use of state-backed bonds to cut interest rates.

On the physical side is the plan to give first attention now to extending intercepting sewers and getting more customers. Thus, the revised Phase 2 will see intercepting mains pushed into Central Falls, Lincoln and Cumberland and further into East Providence—to bring an additional 10.8 mgd of wastes from these points to Bucklin Point for primary treatment.

Phase 3 now envisages doubling the capacity of the Bucklin Point plant (from 20.2 mgd to 47.2 mgd) and construction of secondary treatment facilities.

Housing bonds face new market troubles

Insistence on low interest rates—plus a complicated squabble over legality of a contract—last week blocked sale of more than $2 million in Milwaukee housing bonds, and reflected a break in the hitherto booming market for municipal securities.

First evidence was the virtual failure in attempts to sell notes totaling more than $116.3 million. Offered by 52 housing authorities, only about $27 million were purchased.

A notable group of banking houses and investors refused to submit any bids on the notes at all—explaining that the 1.2% interest rate permitted by the Public Housing Administration provided too little profit to make purchase a profitable venture.

Failure to sell the Milwaukee bonds—issued by the Milwaukee Housing Authority—was closely tied.

Officials explained that in 1949, a New York City investment firm (Allen & Co.) entered into a contract to purchase the bonds. However, squabbles between the housing authority and the Milwaukee City Council delayed issuance of the bonds to the point—the investment firm said—that the contract expired.

Company officials added that current low interest rates probably would force sale of the bonds at discounts.

VITAL INGREDIENT in modern roadbuilding, check for $65 million will be converted into 33 mi of highway, the Delaware river extension of the Pennsylvania turnpike system. The check, representing proceeds from sale of turnpike revenue bonds, is given by Walter H. Steel, Drexel and Co., chairman of the Underwriters' Committee, to Thomas J. Evans, center, chairman of the Pennsylvania Turnpike Commission.

Highway plans spurt in some states, hit money, legal snags in others

With lawmaking time only a few months away in most states, there was a nationwide quickening this week in the tempo of planning, financing and construction of highways—many of them toll roads.

The courts were neither gaining nor losing in importance of their role in deciding highway issues. In two states the bench was looked to as final authority on such issues as legality of a turnpike authority's enabling act, and the fight between asphalt and cement advocates. Another court was sidestepping responsibility for expert opinion on highway and bridge design.

• Who pays?—Matters financial loomed large in these proposed projects:

In Utah, a five-year program including 79 projects was ticketed "urgent." A $35-million bond issue to aid in financing the estimated $71-million total was recommended by the state's Road Commission. Roads would need $51 million, rights-of-way $8.3 million and bridges $11.8 million.

In New Jersey a report by a firm of traffic specialists declared that the State Highway Authority's 180-mi thruway can be self-supporting from tolls if built with a state-guaranteed $285-million bond issue. Voters will decide in November whether the state should back the bonds, which could then probably be sold at a 2% interest rate.

Minnesota's State Highway Department shelved $7 million in road improvement projects pending the outcome of the vote at the November election on a proposed state constitutional amendment specifying the distribution of motor vehicle registration fee receipts between the state and political subdivisions.

In New York State, financial problems were well in hand, with the state ready to pick up the check for a $4.7-million remodeling job on the Bronx River Parkway, bids for which will be opened next week. Contracts will be awarded for the $50-million Westchester segment of the state's $400-million thruway as soon as engineering drawings are completed.

Washington State, satisfied with its experience in past years with toll bridges, may enter the toll-road business. The legislature next January will receive toll-road proposals as a result of recommendations last month by the Washington State Good Roads Association. Only project mentioned so far has been a proposed freeway through Seattle, estimated to cost $100 million.

Wisconsin showed interest in toll roads last week, when the Highway Committee of the State Legislative Council recommended legislation creating a toll road authority, backed with funds to make a cost and traffic survey of a proposed cross-state, four-lane turnpike.

• Citizens seek answers—Two states, Arkansas and Connecticut, were listening to citizens' committee suggestions for new solutions to their highway difficulties.

Appalled at the rapid deterioration of its highway system and the difficulties of financing maintenance, let alone new construction, Arkansas Highway Department officials have named a 28-member citizens' committee to find the answers. The group, working in subcommittees, will study the entire complex of highway problems ranging from financing to administration. Under analysis will be the structure and purchasing procedures of the State Highway Department, legislation affecting trucks, right-of-way acquisition, regulations covering addition and disposal of new roads in the highway system and extension of technical aid to counties.

Connecticut's Governor John Lodge is planning a similar committee to scrutinize the state's long and short-range highway needs.

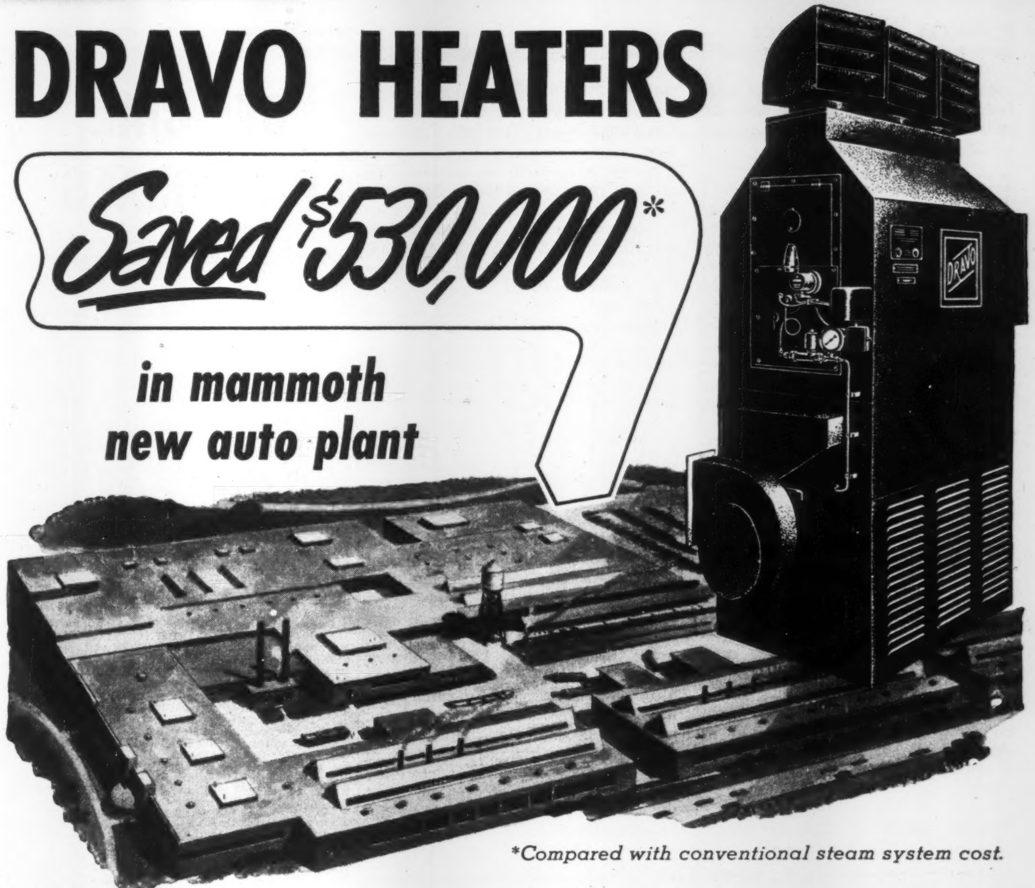
The state's Highway Commissioner, G. Albert Hill, recently reported Connecticut needs more than $700-million worth of road work in the next few years. Connecticut traditionally has paid for its roads out of license and gasoline tax fees, with the exception of major bridges and long parkways. Any extensive overhaul of the state's highways will touch off a dispute between the pay-as-you-go and long-term-bond factions. Getting in the first punch, the Connecticut Highway Users' Conference this week was scheduled to offer Governor Lodge its plan to finance 523 miles of roads by a combination of bonds and application of tax and gas revenue.

• State officers on the spot—Fed up with the bickering in West Virginia that is holding work on the state's proposed tool highway, the Guaranty Trust Co. of New York, trustee for the $96 million in bonds sold to finance the work, has asked the Federal District Court to pass on the legality of the current plan to build only two lanes of the projected four-lane highway initially. The bankers also asked for appointment of a receiver for the Turnpike Commission. If the court finds that it is acting illegally.

In September the state's attorney general advised the governor that the act authorizing construction of the turnpike required that it be built as a four-lane highway (ENR Sept. 18, p. 26). The $96 million in bonds will only pay for a two-lane highway.

If the district court supports the attorney general, both he and the governor will really be on the spot as the Turnpike Commission is a state

DRAVO HEATERS



*Compared with conventional steam system cost.

Half a million is important money in anybody's language —and it gets more important when it's SAVED instead of spent.

That's just what happened when a leading automobile manufacturer recently built a mammoth new body stamping plant, with over 600,000 sq. ft. of floor space, and with ceiling heights ranging up to 52-feet. Heat requirements, including fresh air tempering provisions, totalled 54,250,000 Btu. Lowest quoted price for a conventional steam boiler plant was $860,000. ACTUAL cost of a complete Dravo *Counterflo* Heater installation of 53 units was $330,000. These direct-fired warm-air heaters take care of all open-space heating requirements of the manufacturing area of the plant.

Bear in mind that these savings involved no compromise with heating effectiveness. The top-flight engineers responsible for selection knew how vital *comfort* is in keeping employes contented and promoting top output. They looked *first* for the finest in heating results . . . and *second* for economies. They found both profitably combined in Dravo Heaters.

Neither did this saving come from "cutting corners" in building the heater, but rather through the basic simplicity of method and equipment. Each of the oil-fired space heaters manufactures heat "on demand" to blanket its own assigned area with warmth. It also introduces fresh, tempered air into the building as needed. Modulating burner controls permit continuous operation and continuous air circulation. This minimizes temperature fluctuation, assures maximum comfort in all weathers, and conserves fuel—for when any section needs LESS heat, its unit burns LESS fuel. Units all have the Underwriters' Laboratories label. They can be converted from oil to gas, should the fuel situation make this desirable.

This spectacular saving has been duplicated on a lesser scale in thousands of smaller plants. If you are concerned with heating any new or old building, you owe it to yourself to find out how Dravo *Counterflo* Heaters are serving and saving for others . . . and how they can save both system costs and operating costs for YOU. Look in the yellow section of your phone book—or write us direct at Dravo Building, Pittsburgh 22, Pa., for Bulletin FI-523-6

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agency and its bonds already have been sold to the public. Appointment of a receiver would have an adverse effect on all the state's bonds.

• **Asphalt vs concrete again**—Ohio's Turnpike Commission has another legal fight on its hands, this time as part of the competitive fight between producers of asphalt and portland cement. Richard H. Shafer, owner of asphalt paving plants along the route of the turnpike, has charged that the commission and its engineers conspired to favor portland-cement concrete when they wrote specifications for the pavement to be used on the turnpike.

Bowing to the age of specialization, the North Carolina Supreme Court ruled earlier this month that the question of what constitutes a safe highway underpass is an engineering matter outside the scope of the courts. The town of Williamston had been attempting to compel the State Highway Commission to remodel an underpass carrying U. S. Route 64 under a railroad. The supreme court's findings were clearly in favor of the state commission when it defined highway widening and bridge remodeling as "matters committed by statute to the State Highway Commission as agency of the state," and not matters in which courts are considered to be expert.

• Safety sought—A study of causes and possible ways for reducing accidents was being started last week by the Pennsylvania Turnpike Commission.

Cooperating with the engineering staff of the commission will be the J. E. Greiner Co. of Baltimore, consulting engineers to the commission, and the Union Switch & Signal Division of the Westinghouse Air Brake Co. of Swissvale, Pa.

To begin with, the latter division already has made studies for the commission of signals similar to those used on railways for use on the turnpike in time of storm or fog when speeds should be reduced on some sections of the turnpike (ENR Sept. 20, 1951, p. 29).

The initial phase of this study will relate to possible accidents on the turnpike.

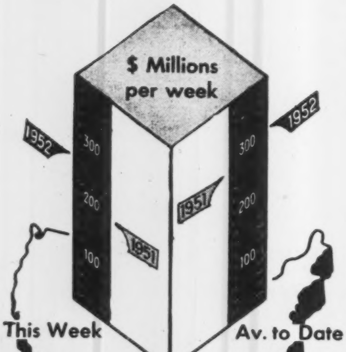
The study will include such subjects as driver reactions to driving for long distances on a highway free of the hazards that on most highways keep drivers alert.

This research will be followed by a study of signal systems that might prove to be useful in keeping drivers alert.

In announcing the research program, T. J. Evans, chairman of the commission, said the joint research group "is prepared to study every phase of the problem to determine the patterns or the factors that might indicate what we can do to make the turnpike safer."

Activity This Week

As reported to ENR (in millions of dollars)



Contracts by type of work

	This Week	Cumulative 42 wks. 1952	Cumulative 42 wks. 1951	% chge
Waterworks..	$6.1	$185.0	$173.8	+6
Sewerage ...	5.5	242.8	269.6	—10
Bridges	17.5	340.3	275.1	+24
Highways ..	19.1	1,250.1	1,001.4	+25
Earthwork, waterways..	8.2	416.8	436.4	—4
Buildings:				
Public	68.9	3,972.7	1,853.2	+114
Housg., pub.	14.9	549.0	576.8	—5
Housg., priv.	25.6	2,480.8	1,626.2	+53
Commercial	16.8	556.4	532.0	+5
Industrial..	56.4	2,310.4	3,558.8	—35
Unclassified.	21.3	1,121.2	1,448.1	—23
Total	**$260.3**	**$13,425.5**	**$11,751.4**	**+14**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes		Base Year = 100 1913	1926	1949
Constr. cost	**Oct.**	**588.43**	**282.86**	**123.27**
	Sept.	586.8	281.73	122.86
Bldg. cost....	**Oct.**	**424.77**	**229.62**	**120.70**
	Sept.	424.40	229.42	120.64
Volume	**Sept.**	**441**	**179**	**127**

OFFICIAL PROPOSALS

Bids: November 17, 1952

Lower Delaware Collecting System

PHILADELPHIA, PENNA.
PROCUREMENT DEPARTMENT
WATER DEPARTMENT

Sealed Proposals will be received at Room 305 City Hall Annex, until 1:30 P.M., Eastern Standard Time, Monday, November 17, 1952, and opened at that time in Room 313 City Hall Annex, Philadelphia, Pennsylvania, for

SCHEDULE "A"—LOWER DELAWARE COLLECTING SYSTEM. Intercepting Sewer in Kenilworth Street from Swanson Street to Front Street, Front Street from Kenilworth Street to Market Street and across Market Street to Water Street, Water Street and Private Property from Market Street to Noble Street, Beach Street from Noble Street to Delaware Avenue and in Delaware Avenue from Beach Street to Laurel Street. Contract No. SD 114 SE

Principal items of work

Approximately 10,000 feet of concrete sewer in earth tunnel varying in size from 9'6" diameter to 7'6" diameter

Proposal forms and specifications may be obtained in Room 1101 City Hall Annex. Blueprints of plans may be purchased at bidder's expense, directly from the Keystone Blue Paper Company, 51 North 13th Street, Philadelphia 7, Pennsylvania.

No bids will be received unless bidder is qualified by the Procurement Commissioner. The questionnaire form with all questions fully answered must be filed with the Water Commissioner, 1103 City Hall Annex, Philadelphia 7, Pennsylvania, at least one (1) week prior to the date of opening bids.

Each bid must be accompanied by security in form and amount as set forth in the proposal form.

CHARLES H. FRAZIER
Procurement Commissioner

Bids: November 21, 1952

Central Schuylkill East Side Intercepting System

PHILADELPHIA, PENNA.
PROCUREMENT DEPARTMENT
WATER DEPARTMENT

Sealed Proposals will be received at Room 305 City Hall Annex, until 1:30 P.M., Eastern Standard Time, Friday, November 21, 1952, and opened at that time in Room 313 City Hall Annex, Philadelphia, Pennsylvania.

SCHEDULE "A"—CENTRAL SCHUYLKILL EAST SIDE INTERCEPTING SYSTEM. Intercepting Sewer in 26th Street from Lombard Street to Delancey Street, Delancey Street from 26th Street to 25th Street, 25th Street from Delancey Street to Spruce Street, Spruce Street from 25th Street to 23rd Street and in 23rd Street from Spruce Street to Market Street. Contract No. SD 148 SW

Principal items of work

3,539 feet of 8'6" diameter concrete sewer in rock tunnel; 61 feet of subway undercrossing in rock tunnel.

Proposal forms and specifications may be obtained in Room 1101 City Hall Annex. Blueprints of plans may be purchased at bidder's expense, directly from the Keystone Blue Paper Company, 51 North 13th Street, Philadelphia 7, Pennsylvania.

No bids will be received unless bidder is qualified by the Procurement Commissioner. The questionnaire form with all questions fully answered must be filed with the Water Commissioner, 1103 City Hall Annex, Philadelphia 7, Pennsylvania, at least one (1) week prior to the date of opening bids.

Each bid must be accompanied by security in form and amount as set forth in the proposal form.

CHARLES H. FRAZIER
Procurement Commissioner

OFFICIAL PROPOSALS

Bids: January 15, 1953

Miami, Florida, Sewage Disposal System

ADVERTISEMENT FOR BIDS

Sealed bids for the construction of a sewage disposal system for the City of Miami, Florida, under the five (5) separate and distinct Contracts hereinafter described will be received by the Water and Sewer Board of the City of Miami at its regular place of meeting at 3342 Dinner Key Drive, Miami, Florida, until 2:30 P.M., Eastern Standard Time, on January 15, 1953, at which time and place all of such bids will be publicly opened and read aloud, said (5) Contracts being as follows:

CONTRACT NO. 1: Consisting of furnishing all labor, materials and equipment and constructing a system of intercepting sewers and force mains, at Miami, Florida, comprising approximately 83,000 lineal feet of intercepting sewers, including manholes and special structures; approximately 14,000 lineal feet of precast concrete pipe force mains, including manholes and special structures; approximately 310 lineal feet of triple pipe inverted siphons including both reinforced concrete pipe and cast iron pipe, with special structures; and all appurtenant work.

CONTRACT NO. 2: Consisting of furnishing all labor, materials and equipment and constructing six sewage pumping stations, at Miami, Florida, in the locations and of the respective dimensions and equipment listed below:

N. E. 77th St. Pumping Station located in the intersection of N. E. 5th Avenue and N. E. 77th Street. Building dimensions 29 feet by 37 ft. 7 in., equipped with two main sewage pumps, one comminutor, and appurtenances.

N. E. 55th Terrace Pumping Station located in Morningside Park on N. E. 55th Terrace. Building dimensions 24 ft. by 28 ft. 4 in., equipped with two main sewage pumps, one comminutor, and appurtenances.

N. E. 9th St. Pumping Station located east of Biscayne Boulevard between N. E. 9th Street and N. E. 10th Street. Building dimensions 59 ft. by 115 ft., equipped with five main sewage pumps, three Diesel engines, transformer sub-station, Venturi vault, one Venturi meter, and appurtenances.

N. W. 4th St. Pumping Station located adjacent to the north bulkhead of the Miami River, at the intersection of N. W. 4th Street, extended, and N. W. North River Drive. Building dimensions 59 ft. by 102 ft., equipped with five main sewage pumps, three Diesel engines, transformer sub-station, Venturi vault, two Venturi meters, and appurtenances.

Brickell Ave. Pumping Station located in the parkway at the intersection of S. E. 12th Street and Brickell Avenue. Building dimensions 15 ft. 4 in. by 23 ft. 4 in., equipped with two main sewage pumps, one comminutor, and appurtenances.

S. E. 25th Road Pumping Station located in the parkway in S. E. 25th Road, near Brickell Avenue. Building dimensions 16 ft. by 27 ft. 3 in., equipped with three main sewage pumps, one comminutor and appurtenances.

CONTRACT NO. 3: Consisting of furnishing all labor, materials, and equipment and constructing the Biscayne Bay Force Main comprising approximately 14,350 lineal feet of 72-inch reinforced concrete pipe under Biscayne Bay from Bayfront Park to Virginia Key, Miami, Florida, including all special structures and appurtenances.

CONTRACT NO. 4: Consisting of furnishing all labor, materials and equipment and constructing a Sewage Treatment Plant on Virginia Key, Miami, Florida, including hydraulic fill over approximately 80 acres; construction of eight one and two-story buildings from 88 by 126 ft. to 28 by 30 ft.; two Grit Chambers, each 23 by 64 ft.; four Aeration Tanks, each 68 by 250 ft.; four Settling Tanks, each 57 by 310 ft.; four Sludge Digestion Tanks with floating covers, each 105 ft. dia.; four Elutriation and Concentration Tanks, each 55 ft. dia.; Sludge Dewatering and Drying facilities; sewers, conduits, channels and pipelines; equipment, and appurtenant work.

CONTRACT NO. 5: Consisting of furnishing all labor, materials, and equipment and constructing the Virginia Key Outfall Sewer comprising approximately 1,270 lineal feet of 108-inch precast reinforced concrete pipe sewer on Virginia Key, Miami, Florida, and 4,650 lineal feet of 90-inch precast reinforced concrete pipe sewer on Virginia Key and in the Atlantic Ocean, and all appurtenant work.

A bidder may bid for one or for any number of said five (5) Contracts, but each of such Contracts will be considered as a separate and distinct unit for the purpose of comparing bids and making awards, and each of such Contracts will be awarded to the lowest responsible bidder therefor, irrespective of the number of Contracts bid for by such bidder; provided, however, that a bidder who bids for more than one Contract shall have the right (a) to prescribe that all of the bids submitted, or any combination thereof designated by such bidder, shall be considered collectively, and (b) to state an amount by which the aggregate amount of all bids submitted by such bidder, or designated combination thereof, shall be reduced in the event that all Contracts bid for, or such designated combinations, are awarded to such bidder, and in either of such events the Water and Sewer Board shall have the right to award all Contracts or combinations of Contracts covered by such bids to such bidder if the aggregate amount thereof, adjusted to give effect to the conditions so prescribed by such bidder, is less than the aggregate amount of the lowest bids submitted by the other bidders for the same Contracts.

Authorization has been requested from the National Production Authority for the commencement of construction and for the procurement of controlled materials for use on this Project.

Sets of the Contract Documents may be obtained at the office of the Department of Water and Sewers at 3342 Dinner Key Drive, Miami, Florida.

A charge will be made for each set of Contract Documents for each of the five Contracts, including reduced size prints of the Plans. A refund of not more than the charge for three (3) sets of the Contract Documents for each Contract will be made to those persons or firms who submit a bona fide bid to the Department on one or more of the Contracts, if the set is returned in good condition, transportation prepaid, within fifteen (15) days after the opening of the bids. The schedule of charges is as follows:

Contract No. 1— Intercepting Sewers and Force Mains	$20.00
Contract No. 2— Sewage Pumping Stations	$20.00
Contract No. 3— Biscayne Bay Force Main	$10.00
Contract No. 4— Sewage Treatment Plant	$40.00
Contract No. 5— Virginia Key Outfall Sewer	$10.00

A deposit will be required for each set of full-size (24" x 36") contact prints of the plans according to the following schedule, but a refund of such deposit will be made if the set is returned, in good condition, transportation prepaid, within fifteen (15) days after the opening of bids:

Plans for Contract No. 1	$ 65.00
Plans for Contract No. 2	$ 30.00
Plans for Contract No. 3	$ 10.00
Plans for Contract No. 4	$110.00
Plans for Contract No. 5	$ 10.00

Contact prints of single plans may be obtained for fifty cents ($.50) per print, which charge will not be refunded.

The Contract Documents may be examined also at the office of Metcalf & Eddy, Engineers, 1300 Statler Building, Boston, Massachusetts; Radar Engineering Co., 1615 duPont Building, Miami, Florida; and Maurice H. Connell & Associates, Inc., Suite 200, Langford Building, Miami, Florida.

The Water and Sewer Board of the City of Miami, Florida, reserves the right to reject any or all bids, to waive any informality in any bid, or to readvertise for bids.

W. A. GLASS, Director
Department of Water and Sewers
City of Miami, Florida

Bids: October 28, 1952

Pumps, Electric Motors, Etc.

CONTRACT 413

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, October 28, 1952, for Contract 413, for furnishing, testing and delivering deep well turbine pumps and deep well plunger pumps, electric motors and appurtenances for the Neversink intake chamber, the Downsville release water chamber and the intake and outlet chambers of the East Delaware tunnel, of the Delaware system, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of four thousand dollars ($4,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawing, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: November 18, 1952

Sewage Treatment Plant Additions

Sealed bids for Sewage Treatment Plant Additions at the Sewage Treatment Plant at the Foot of Ferry Street will be received by the Buffalo Sewer Authority, Room 1038, City Hall, Buffalo 2, New York, until 11:00 A.M. Eastern Standard Time, November 18, 1952, and then publicly opened and read aloud.

Form of proposal, agreement, bonds, specifications and instructions to bidders may be examined at the office of the Authority and a copy may be obtained upon a deposit of $50.00 to be refunded upon return of drawings and documents in good condition within thirty (30) days after the opening of bids.

The Authority reserves the right to waive any informalities in or to reject any or all bids.

BUFFALO SEWER AUTHORITY
David J. Laub, Chairman

Dated: October 16 and 23, 1952
Buffalo, New York

Pennsylvania Department of Highways, Harrisburg, Pennsylvania. Sealed proposals will be received at the office of the Secretary of Highways, Room 506, North Office Building, State Capitol, until 11:00 a.m., eastern standard time, October 31, 1952, when bids will be publicly opened and scheduled and contract awarded as soon thereafter as possible for the construction of a steel arch and I-beam bridge having a total overall length of 425 feet and approximately 1843 linear feet of crushed aggregate base with bituminous surface 22 feet and variable in width and 554 linear feet of grading and drainage. Sullivan County (New York), Tusten Town, Wayne County (Pennsylvania), Damascus Township, L.R. 335(4), T.R.106. Bidding blanks and specifications may be obtained free; a charge of $7.50 a set is made for construction drawings and a charge for cross sections will be $5.00. Both may be obtained upon application to the Pennsylvania Department of Highways, Harrisburg. A refund for drawings or cross sections returned will not be made. They may be seen at the offices of the Pennsylvania Department of Highways, Harrisburg; Pennsylvania Company Bank Building, 7 East Lancaster Avenue, Ardmore; Wabash Building, Liberty Avenue and Ferry Street, Pittsburgh; Wyoming Avenue and Ash Street, Scranton, Pennsylvania and 71 Frederick Street, Binghamton, New York; State Office Building, Albany, New York; State Office Building, 270 Broadway, New York City, New York. E. L. Schmidt, Secretary of Highways.

OFFICIAL PROPOSALS

Bids: October 30, 1952.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2 , Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 30th day of October 1952, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the projects listed below.

DISTRICT No. 1

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
G. L. Nickerson, District Engineer, 353 Broadway, Albany, New York						
Albany	FARC 52-90 FASH 52-13	Loudonville-Menands, S. H. 1879 Menands-Troy Bridge Proj. U-1105(1)	1.67	9" Cem. Conc. Pavt. 48' Wide=1.16 Mi. Asp. Conc. Ty. 1A, Opt.=0.51 Mi. R. R. Sep. Alpha I-Beam 165'	$54,000 Plans $15	$989,000
Greene	C. T. 52-7 S. T. 52-25 R. C. 52-105	New York State Thruway-Catskill Section-Sub. 6 (Greene Co. L.-Rte. 9W); Coxsackie-Ravena Pt. 1 S. H.5198; New Baltimore Station-Coeymans, S. H. 1348; 5 Access Roads to S. H. 1348 and S. H. 5198	6.06 Thwy. 2.20 Acc.	9" Cem. Conc. Pavt. 2 @ 25' & Var. Wide = 6.49 Mi. Asp. Conc. Ty. 1A, Opt. = 1.03 M . Gravel (Cal. Chl. Treat.) = 0.74 Mi. Hy. Sep. 4 Sp. Alpha I-Beam 301.92' Hy. Sep. 4 Sp. Alpha I-Beam 368.5' Hy. Sep. Fig. Frame 31' Alpha I-Beam Bridge 62' R. R. Sep. 3 Sp. Alpha I-Beam 286'	$290,000 Plans $50	5,220,000
DISTRICT No. 2						
Lacy Ketchum, District Engineer, 109 No. Genessee St., Utica, New York						
Oneida	M. T. 52-12 S. T. 52-26 R. C. 52-106	New York State Thwy. Mohawk Section-Subd. 6 & 7 (Lowell-Whitesboro) Various County & Town Roads; Kirkland-Rome S. H. 8246	11.05 Thwy. 2.68 Acc.	9" Cem. Conc. Pavt. 2 @ 25' & Var. Wide = 11.23 Mi. Asp. Conc. Ty. 1A, Opt.= 2.08 Mi. F. C. Gravel = 0.42 Mi. Interchange 4 Sp. Alpha I-Beam 205.4' Hy. Sep. 4 Sp. Alpha I-Beam 225.1' Hy. Sep. 4 Sp. Alpha I-Beam 226' R. R. Sep. 3 Sp. Alpha I-Beam 234' Hy. Sp. 4 Sp. Alpha I-Beam 224.7' 4 Sp. Alpha I-Beam Br. 241.9' Hy. Sep. 4 Sp. Alpha I-Beam 202.2'	$350,000 Plans $100	6,433,000
Madison & Oneida	M. T. 52-14 M.T.C. 52-15 S.T.C. 52-27 R. C. 52-108	New York State Thwy. Mohawk Section-Sub. 3 & 4..... (Canastota-Verona Station); City of Oneida; North-South Artery; Oneida-South Bay Pt. 1 S. H. 1110; Oneida-Verona S. H. 5558; Verona-Rome S. H. 5521	5.00 Thy. 4.10 Acc.	9" Cem. Conc. Pavt. 2 @ 25' & Var.= 7.51 Mi. Asp. Conc. Ty. 1A, Opt.= 0.70 Mi. Graded Gravel B. D. S. T.= 0.03 Mi. Misc. Work = 0.86 Mi. Hy. Sep. 4 Sp. Alpha I-Beam 203' Hy. Sep. 4 Sp. Alpha I-Beam 198' Hy. Sep. 4 Sp. Alpha I-Beam 224.2' R. R. Sep. 3 Sp. Alpha I-Beam 282'	$230,000 Plans $100	4,042,000
DISTRICT No. 3						
William Robinson, District Engineer, Weight Lock Bldg., Syracuse, New York						
Onondaga	O. T. 52-16 M. T. 52-11	New York State Thruway Ontario Section-Sub 8A (Rte. 370-Brewerton Rd.) Mohawk Section-Sub 8B (Brewerton Rd.-Madison Co. L.)	6.82	Chain Link & Cattle Fencing	$1,800 Plans $10	32,000
Tompkins	FARC52-100	Dryden-Harford S. H. 8016 Proj. S-63(2)	0.30	8" Cem. Conc. Pavt. 22' Wide=0.22 Mi. Asp. Conc. Ty. 1A, Opt.= 0.08 Mi. 2 I-Beam Brs. 60' & 30'	$9,000 Plans $10	154,000
DISTRICT No. 4						
J. P. Larsen, District Engineer, Barge Canal Terminal, Rochester, New York						
Wyoming	FASSH52-15 FASSH52-16P FARC52-101	Persons Corners-Bennington Pts. 2 & 1 Cowlesville-Bennington S. H. 9041 Proj. S-290(2)	1.43	Asp. Conc. Ty. 1A, Opt.= 0.13 Mi. Bit. Mac. Rd. Mix. = 1.30 Mi. 50' I-Beam Br. 25' x 16' Closed Box Br. Hy. Sep. 3 Sp. I-Beam 122.5'	$27,000 Plans $25	482,000
DISTRICT No. 5						
C. R. Waters, District Engineer, 65 Court St., Buffalo, New York						
Erie	O. T. 52-15 S. T. 52-24 R. C. 52-104	New York State Thruway Ontario Section-Sub. 12 (Cleveland Drive-Union Rd.) Interchange to Main St. Connection; Wehrle Drive; Forest Rd.; Union Rd.; S. H. 9215	1.11 Thwy. 4.64 Acc.	Two Course Cem. Conc. Pavt. 2 @ 25' Wide = 3.87 Mi. Asp. Conc. Ty. 1A, Opt.= 0.31 Mi. Bit. Mac. Ty. 1 = 0.56 Mi. Grade Gravel Bit. Treat.= 0.35 Mi. Misc. Work = 0.66 Mi. Interch. 3 Sp. Alpha I-Beam 144' Interch. 4 Sp. Alpha I-Beam 266.8' Interch. 4 Sp. Alpha I-Beam 327' Hy. Sep. 4 Sp. Alpha I-Beam 195.83' Hy. Sep. 4 Sp. Alpha I-Beam 277.83' Hy. Sep. 4 Sp. Alpha I-Beam 255'	$148,000 Plans $50	2,697,000
Erie	FASS 52-13	Walden Ave.-Ellicott Rd. C. R. 318 Proj. S-380(1)	2.93	Asp. Conc. Ty. 1A, Opt.	$27,000 Plans $15	504,000
DISTRICT No. 8						
J. S. Bixby, District Engineer, Pleasant Valley Rd., Poughkeepsie, New York						
Westchester	R. C. 52-103	Removal of Trees in Westchester County	...	Removal of 113 Trees	$550 Plans $10	10,000
Westchester & Bronx	FABRP 52-1 FACCP 52-1	Bronx River Parkway (Lower Sect. Pt. 1 & 2) Cross County Pkwy. Proj. U-979(13); U-1008(2)	2.89	8" Cem. Conc. Pavt. Var. Wide Hy. Sep. 2 Sp. Alpha I-Beam 85.64' Alpha I-Beam Br. 54.5' 2 I-Beam Foot Brs. 50' Each Hy. Sep. 3 Sp. Alpha I-Beam 149.4' Hy Sep. 2 Sp. Alpha I-Beam 92.5' Widen Exist. 80.34' Hy. Sep.	$250,000 Plans $100	4,726,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specifications, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

U. S. Government

On or about Oct. 27, 1952, bidding material for construction (except elevators) of the receiving building R1 and R2 at St. Elizabeth's Hospital, Washington, D. C., will be available for distribution to general contractors by this office. Applications from general contractors interested in bidding on this work, for not to exceed four sets of drawings and specifications, should be filed promptly with this office and the bidding material will be forwarded as soon as available. Bids will be opened on the date named in the Prebid Documents, which will be about four weeks after the bidding material is available for distribution. Description: Six story and Penthouse, basement and subbasement building. Fireproof. Reinforced concrete construction. Exterior face brick with limestone and granite trim. Aluminum awning type windows, with Alternate for double-hung reversible type wood windows. Composition and copper roofs. Hollow metal and wood doors, floors of cement, quarry tile, paver tile, ceramic tile, asphalt tile and terrazzo. Marble and metal toilet partitions. Plastered walls and ceilings. Acoustical tile ceilings in certain areas. Refrigerators of walk-in types in kitchen. Dining Rooms and Serving Kitchens on all floors. Detention type insect screens generally throughout. Trash and linen chutes. Special types of builders' hardware and lock sets. Glass and Glazing includes double-glazed glass units and tempered glass. Elevators will be under a separate contract. Available for construction—$4,300,000.00. Bidding material will be available at Rm. No. 1304, General Services Building, 19th and F Streets, N.W., Washington 25, D. C., Phone EX-4900, BR-2397. W. E. Reynolds, Commissioner of Public Buildings Service, General Services Administration.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3822) will be received at District Public Works Office, Eleventh Naval District, 1220 Pacific Highway, San Diego, Calif. until November 18, 1952, for furnishing labor and materials for: Earthwork, pipe line and structures North station 1968+15 to South station 34+26, San Jacinto-San Vicente Aqueduct, San Diego Project, California. Location: Between Fallbrook and Riverside, California. Principal items are: Excavation 526,000 cu. yds.; furnishing and laying 23 miles 48-inch diameter cylinder and non-cylinder concrete pipe; furnishing and laying 5.6 miles of 54-in. diameter cylinder and non-cylinder concrete pipe; and other work. The work is divided into three schedules. Completion time 730 days. For particulars, address Bureau of Reclamation, Escondido, California; or Building 53, Denver Federal Center, Denver, Colorado.

Bids: November 6, 1952

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 6th day of November 1952, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2						
Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, New York						
Montgomery	M.T. 52-13 RC(MT) 52-107	New York State Thruwy Mohawk Section-Sub 14 (Randall-Fort Hunter) Relocated Canajoharie-Fultonville, Pt. 2 S. H. 8371	0.98	Asp. Conc. Ty. 1A, Opt. Twin Box Br. 2 @ 22.5′ Twin Box Br. 2 @ 22.75′ R. R. Sep. 3 Sp. Alpha I-Beam 300′	$41,000 Plans $15	$761,000
Mont. & Herkimer	M.T. 52-16 S.T. 52-28	New York State Thruway Mohawk Section-Sub. 12BE & 12BW (Indian Castle-Caroga Creek (Co. Rd. 65; Indian Castle Rd.; Farm Rd.; Co. Rd. 188 & Town Rd.	8.71 Thwy. 3.30 Acc.	9″ Cem. Conc. Pavt. 2 @ 25′ = 8.71 Mi. Asp. Conc. Ty. 1A, Opt.= 2.77 Mi. Cal. Chloride Treated Gravel = 0.53 Mi. Hy. Sep. Conc. Rigid Frame 31′ Br. & Hy. Sep. 3 Sp. Alpha I-Beam 179.6′ Hy. Sep. 4 Sp. Alpha I-Beam 266.8′ Hy. Sep. AlphaI-Beam(& Culv.) 48.1′	$306,000 Plans $100	5,562,000
DISTRICT No. 7						
C. C. Cassel, District Engineer, 444 Van Duzee St., Watertown, New York						
Clinton	FARC52-110	Ausable Forks-Clintonville S. H. 476 Clintonville-Keeseville S H. 651 Proj. F-876(2)	8.97	Asp. Conc. Ty. 1A, Opt.	$69,000 Plans $25	1,275,000
Franklin	FASH 52-17 FARC 52-109	Works Corners-Colbys Corners Paul Smiths-Gabriels, S. H. 9027 Proj. F-562(6); F-644(2)	5.80	Asp. Conc. Ty. 1A, Opt.= 5.76 Mi. Misc. Work = 0.04 Mi.	$39,000 Plans $25	709,000
DISTRICT No. 10						
J. J. Darcy, District Engineer, Montauk Highway, Babylon, L. I., New York						
Bronx	FACBE 52-2	Cross Bronx Expressway Contract 9Y Proj UI-1084(17)	0.19	Demolition of Bldgs.	$5,000 Plans $10	95,000
Bronx	FAMDE52-5	Major Deegan Expressway Contract 6 Proj. U-1082(12)	1.29 Exp. 0.28 Acc.	Grading Drainage & Misc. Work = 1.29 Mi. Sheet Asp. Pavt.= 0.12 Mi. Cem. Conc. Pavt.= 0.16 Mi. Hy. Sep. Alpha I-Beam 119.69′ Hy. Sep. Alpha I-Beam 98.55′	$415,000 Plans $100	7,520,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: November 19, 1952

Booster Pumping Stations and Underground Reservoirs Department of Water Supply City of Detroit, Michigan

CONTRACT NO. BP-1

Sealed proposals for constructing Booster Pumping Stations and Underground Reservoirs will be received by the Board of Water Commissions of the City of Detroit. Proposals shall be addressed to the Board of Water Commissioners, City of Detroit, Room 506, Water Board Building, 735 Randolph Street, Detroit 26, Michigan and shall be endorsed "Proposal for Contract No. BP-1". Proposals will be received until 10:00 A.M. Eastern Standard Time, November 19, 1952, at which time they will be opened and read aloud in the Board Room, Fifth Floor, Water Board Building, 735 Randolph Street, Detroit 26, Michigan. Any proposal received after the time referred to above will be returned to the bidder unopened.

The work to be performed includes the construction of a waterworks booster pumping station and underground reservoir and installation of certain items of major equipment furnished by others at each of the following locations:

(a) Northwest Booster Plant on James Couzens Highway at the corner of Greenfield Road. Pumping Station housing five vertical centrifugal waterworks pumping units, each having a capacity of 10 MGD; underground reinforced concrete storage reservoir of 10 million gallons capacity; piping connections between distribution system, reservoir and pumping station, and other related work.

(b) East Side Booster Plant at the corner of Warren and Canyon Avenue. Pumping station, reservoir, piping and other work similar to that at Northwest Booster Plant above, but with only three pumping units installed in the pumping station.

The power transformers, electric switchgear, pumping units and cone valves required for each of the above stations will be furnished under other contracts and delivered to the site for installation under this contract.

The approximate quantities of a few of the major items at each station are listed below to give bidders a general idea of the magnitude of the work and are not intended to be close estimates of the quantities involved.

	For Each Station
Earthwork (minimum)	85,000 cu. yds.
Reinforced Concrete	12,000 cu. yds.
Brick and Tile Masonry	140 M
Structural Steel and Miscellaneous Metal	40 Tons

Separate proposals on the lump sum price basis for the complete work at either or both of the two stations are solicited.

It is required that the work be completed at each station ready to pump water within 180 calendar days after the notice to commence work.

The contract documents may be examined during business hours, at the office of the Department of Water Supply, Room 706, Water Board Building, 735 Randolph Street, Detroit, Michigan. The contract documents may be obtained at the above office by making a deposit of $25.00 per set, which sum will be refunded upon the return of the complete Contract Documents in good condition within thirty (30) days after the bid date, or if used in making a bona fide proposal.

Each proposal shall be accompanied by a certified check or a satisfactory bidder's bond in an amount not less than five per cent (5%) of the total lump sum price bid, drawn payable to the City of Detroit, Board of Water Commissioners, as security for the acceptance of the Contract.

No proposal may be withdrawn for at least sixty (60) days after the scheduled closing time for receipt of bids.

The Board of Water Commissioners reserves the right to waive any informality in any bid and to accept any bid, or to reject any or all bids, should it deem it to be in the best interests of the City of Detroit so to do.

CITY OF DETROIT
BOARD OF WATER COMMISSIONERS
Oscar Wagner, President
George A. Shaffer, Vice President
Alfred J. Simpson

L. G. Lenhardt, Superintendent
General Manager and Chief Engineer
E. H. Bauer, Acting Secretary

Bids: November 6, 1952

Construction of Concrete Trestle Sections

Sealed bids for furnishing all labor and materials and performing all work for the construction of concrete trestle sections, requiring 41,380 C.Y. foundation excavation, 252,320 L.F. timber foundation piles, 26,000 L.F. steel shell foundation piles, 20,876 yards of concrete and 45,000 cwt. of reinforcing steel for the high level crossing of the New Orleans, Texas & Mexico Railway over the West Atchafalaya Floodway between Cortableau and Krotz Springs, St. Landry Parish, Louisiana, will be received by F. S. Schwinn, Assistant Chief Engineer of the N.O.T. & M. Railway, 204 Union Station, Houston, Texas, until 10 A.M., Eastern Standard Time, November 6, 1952, and then publicly opened. Further information upon application to F. S. Schwinn, Assistant Chief Engineer.

October 10, 11, 12 and 13.
November 4 and 5, 1952.

U. S. Government

Department of Commerce, Bureau of Public Roads, October 6, 1952. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., NOVEMBER 6, 1952, for Project 1A6, Baltimore-Washington Parkway, District of Columbia and Prince Georges County, Maryland. Bridge over Anacostia River. Steel Girder Spans on Concrete Piers and Abutments with Stone Facing, Untreated Timber Piling and other work. Length of Project: 0.101 mile. The approximate quantities of the more important items are: 9,000 cu. yd. Excavation for Structures, 10,000 cu. yd. Cement Concrete, 1,100,000 lb. Reinforcing Steel, 1,773,000 lb. Structural Steel and 480 cu. yd. Stone Masonry. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the address given above. H. J. Spelman, Division Engineer.

OFFICIAL PROPOSAL

RATE: $1.50 per line (or fraction) per insertion.

CLOSING DATE: 10:30 a.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

CLASSIFIED **SEARCHLIGHT SECTION** ADVERTISING

EMPLOYMENT • BUSINESS • **OPPORTUNITIES** • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:

(Not available for equipment advertising)

$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

POSITION WANTED & INDIVIDUAL SELLING OPPORTUNITY undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.50 a line an insertion.

INFORMATION.

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:

The advertising rate is $17.10 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

NEW ADVERTISEMENTS Address New York City Office, 330 W. 42nd St., N. Y. 36, for November 6th issue closing October 27th.

ENGINEERS And DESIGNERS

Arthur G. McKee and Company has openings in their Cleveland, Ohio and Tulsa, Oklahoma offices for:

Instrument Specifications Engineers
Piping Designers
Pressure Vessel Designers
Structural Designers
Concrete Designers
and
Electrical Designers

with experience in petroleum refinery design.

Good hourly rates with overtime
45-hours—5 days per week
Annual profit-sharing bonus

These are permanent positions which are well worth your investigating.

Write giving complete details of education and experience to:

ARTHUR G. McKEE & CO.
2300 CHESTER AVE.
CLEVELAND 1, OHIO

CIVIL ENGINEER-DRAFTSMAN

Graduate Civil Engineer experienced in design of structural steel, reinforced concrete, foundations and structures. Must also have experience in drafting and be capable of neat lettering. Age 25-45.

DESIGNER-DRAFTSMAN

Experienced in design of structural steel, reinforced concrete, electric power and lighting systems, pressure vessels and piping systems. Prepare layouts and detail drawings from flow diagrams in collaboration with Process or Project Engineers. Two years of college engineering training, civil, mechanical or electric major required. Age 27-45.

Write full qualifications, references and salary desired.

Industrial Relations Department
TIDE WATER ASSOCIATED OIL COMPANY
East 22nd St. Bayonne, N. J.

SOUTH AMERICA

Affiliates of STANDARD OIL CO. (N.J.) can offer attractive staff positions to qualified men with oilfield or refinery experience in following categories:

- Project Engineers
- Refinery Process Engineers
- Pipeline Eng'rs & Supervisors
- Drilling Engineers
- Structural Designers
- Piping Designers
- Equipment Eng'rs & Inspectors
- Safety Supervisors
- Production Supervisors
- Mechanical Foremen
- Carpenter Foremen
- Metals Foremen

Write giving age, marital status, education and detailed experience.

Box 308-N, Radio City Station
New York 19, N. Y.

COST
Accountants—Engineers

Must be experienced in construction costs, and willing to re-locate on project basis with nationally known industrial building firm.

Excellent opportunity offering good starting salary to qualified energetic applicants.

Submit complete record of background, stating availability date and salary requirement.

P-5550, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

CIVIL ENGINEER graduate, under 40 years, paving experience desirable, for technical, promotional, educational work in Pennsylvania. Permanent. Please give summary of education, experience, salary requirements in reply to P-5648, Engineering News-Record.

ESTIMATOR FOR established heavy construction contracting firm in New Jersey. Will be required to take off and price concrete structures, piping, excavation, structural steel, etc. Write stating qualifications, experience and salary requirements. P-5634, Engineering News-Record.

EXPERIENCED MAN for quantity survey work in building contractors office. Graduate civil or architectural engineer accurate, aggressive individual. Reply by mail, telephone or in person, giving qualifications, availability and salary requirements. Replies will be held confidential if requested. J. H. Findorff & Son Inc., 601 W. Wilson Street, Madison, Wisconsin.

SALES ENGINEER—We need Engineers with concrete or concrete construction experience who would rather deal with people than drawing boards or "T" squares. Must have sales ability and potential to advance to district manager. Limited travel, location New York, Chicago, Montreal and possibly other cities. Sika Chemical Corporation, Passaic, New Jersey.

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation, group insurance, good working conditions, top rates. Only top quality men. Send complete written information. Bristol Steel and Iron Works, Inc., Bristol, Virginia-Tennessee.

WANTED: MECHANICAL Engineer, age 35 to 45, should have had at least ten years experience in material handling, preferably in hoisting equipment field. Also, should have supervisory ability. Write full qualifications and salary requirements. P-5660, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

SALES ENGINEER, College Graduate, familiar with road building work to sell crushed stone, asphalt and black top to State Contractors and Highway Officials. Must be sober, industrious, and over 25 years of age. Good Salary. SW-5573, Engineering News-Record.

SALES ENGINEER for large concrete products manufacturer operating in eastern half of United States. Applicant should be graduate civil engineer with sales personality. Prefer person who lives in vicinity of Baltimore, Maryland. Excellent proposition with a bright future. Write SW-5700, Engineering News-Record.

POSITIONS WANTED

CIVIL ENGINEER: Resident or Contractor's Engineer, immediately available. Construction and layout of airports, highways, drainage, grading, paving. Inspection and field plan adjustments. Diversified engineering experience about 40 years includes responsible supervisory U. S. and foreign assignments. Reg. P.E., N.Y. Willing to travel. Excellent references. PW-5241, Engineering News-Record.

CIVIL ENGINEER, 30, French, expected arrive U.S.A. Nov.; Graduate State Public Works School. Eight years experience design, supervision, buildings, sewerage systems, bridges, etc. Would accept Draftsman's job to start, anywhere in U.S.A. PW-5593, Engineering News-Record.

SUPERINTENDENTS AND PROJECT MANAGERS TRAINING COURSE

All instruction by mail. Send today for sample lesson and complete details

GEO. E. DEATHERAGE & SON
5 E. Preston St. Baltimore 2, Maryland

BRIDGE ENGINEERS

Designers, draftsmen, squad leaders, specification writers, field engineers. Good pay for qualified men. Opportunities for advancement. Pleasant working conditions. Interesting projects. Apply in person or write fully stating education and experience.

D. B. STEINMAN, *Consulting Engineer*
117 Liberty Street New York 6, N. Y.

POSITIONS WANTED

CIVIL ENGINEER, B. S. C. E., Registered in Ohio, married, desires promotional or administrative position. Experienced in sales, management, structural and hydraulic design. PW-5711, Engineering News-Record.

CIVIL ENGINEER: 35, graduate, registered Calif., 6 years structural, 5 years city engineer assistant, fluent French; married; seeks position, France, French Possession. PW-5708, Engineering News-Record.

CONSTRUCTION ENGINEER would like to manage branch office for large contract firm, or comparable position. Heavy in estimating and field supervision. Present salary, low five figures. Age 36. PW-5518, Engineering News-Record.

CONSTRUCTION MANAGER or Projects Manager available December 1st. Over 25 years diversified experience as Construction Manager and Projects Manager on foreign and domestic work. Outstanding record on reorganizations of delayed projects and in over-all management, coordination and supervision number of simultaneous jobs and all depts. of jobs. Highest references. PW-5586, Engineering News-Record.

EARTHWORK CONSTRUCTION Engineer, C.E. graduate. Broad experience in cutter-head Hydraulic suction dredging; dragline embankment, excavation; hauling. Thoroughly familiar with Government contracts and specifications. PW-5629, Engineering News-Record.

EXECUTIVE ENGINEER, long experience, management large company, heavy construction docks, foundations, tunnels, difficult subaqueous structures, etc. PW-5428, Engineering News-Record.

EXECUTIVE, GENERAL contractor. Estimate, Price, Competitive bids, Buy, Expedite, Job Costs, handle Subs. All office details award to final, excellent record. Will relocate. PW-5684, Engineering News-Record.

GENERAL SUPERINTENDENT—16 years experience heavy industrial commercial and public buildings. Age 38. C. E. degree. Presently employed desires change. Location East Coast. N.Y. area preferred. Salary $12,000. Have experience as general Supt., General manager, Supt. and estimator. PW-5644, Engineering News-Record.

WORK WANTED

STRUCTURAL STEEL, Reinforced Concrete—Design and Drafting by experienced New York office. WW-5731, Engineering News-Record.

SELLING OPPORTUNITY WANTED

AGGRESSIVE DISTRIBUTOR desires accounts for building specialties or contractor's supplies in Del., Md., Va., D.C. area. New products welcomed. Write Modern Materials Company, 422 Washington Bldg., Washington, D.C.

When Answering BOX NUMBERS...

to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING

OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-first year. Write today.*

WILSON *Engineering Corp.*
College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

CONSTRUCTION SUPERINTENDENTS & ENGINEERS

Large chemical company requires construction superintendent and engineers for regular full time positions in central and eastern U. S. location. Chemical plant experience beneficial. Must be willing to travel. Full details of experience, age, salary expected, and when available for work, must be given in first letter. Write Box ENR 744, 221 W. 41 St., N. Y.

PROJECT MANAGER

To take charge of large South American engineering and construction project of long duration.
Must have past record of accomplishment as capable organizer and time conscious driver of major projects involving process and chemical industries, housing, water, sewer, electric, roads and railroads, terminals, wharves, etc. Spanish language capabilities desirable. Only applicants sending well prepared and all embracive particulars of past experience, education, personal, and past earnings will be considered.

P-5661, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

BUILDING ESTIMATOR

Experienced man, capable of assuming responsibility, to take charge of estimating and contract work. This is an exceptional opportunity with a young and growing building organization operating throughout the south. Write fully stating education, experience, references, availability and personal details.

P. O. Box 1144, Montgomery, Alabama

SALES ENGINEER

Construction equipment—middlewest territory with headquarters in Chicago. Prefer graduate engineer with C.E. or M.E. degree. Age 32 to 36. With construction and sales experience. Real opportunity for future advancement with nationally known and well established company. Give full details in first letter including minimum starting salary. Interview will be arranged if qualifications are satisfactory. Our sales force has been advised of this ad.

SW-5675, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED

An Alert Mechanical Engineer with Some Knowledge of Electrical Engineering . . . Must Be a Good Calculator . . .

PHILIPS & DAVIES, INC.
KENTON, OHIO

DRAFTSMEN

ELECTRONIC
MECHANICAL
STRUCTURAL
PIPING

Why It Will Pay You To Work on Nuclear Powered Ships with Electric Boat in Attractive Groton, Connecticut

OPPORTUNITY to pioneer in this great new field with Electric Boat, builders of the world's first atomic powered submarines.

STABILITY —no draftsman has been laid off at Electric Boat for over 20 years!

HIGH WAGES together with achievement and security, provide a strong basis for job satisfaction.

RELAXATION Leisurely living in the attractive community of Groton (near New London on Long Island Sound), within minutes of every recreational facility.

Don't wait—send resume now!

Mr. Peter Carpenter

ELECTRIC BOAT
Division of General Dynamics Corp.
GROTON CONNECTICUT

FOR SALE

CONCRETE PIPE PLANT

completely new machined concrete pipe plant now in operation—city of ¾ million—west—only one other plant in state—sizes on hand to 48"—$40000 will handle—complete with siding, bldgs., tractor, stock. Write

FS-5683, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

STEEL TRUSS BRIDGE FOR SALE

73 Ft. Span Low Truss, 22.8 Ft. roadway, two 8 Ft. Sidewalks, steel railings. Disassembled and match marked ready for erection. A real bargain for county or township needing bridge to carry full legal loads.
Located in Marshall, Minnesota.

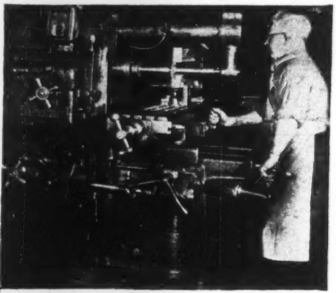
McCree & Company—918 New York Bldg.
St. Paul 1, Minn. Cedar 1065

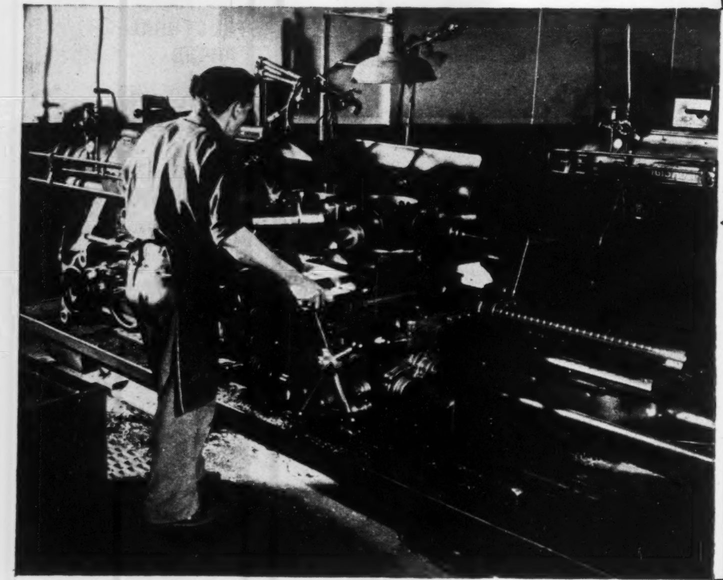
WANTED

15/20 tons Truck Crane or ¾ cy Crawler Shovel or Backhoe
in exchange of:
1—International TD-18 hydr. rebuilt bulldozer
1—International TD-14 hydr. rebuilt bulldozer
Will also sell bulldozers outright

B-A-B CORPORATION
401 Broadway, Room 1212, N. Y. Tel. CA 6-5723

He works with Doctor-like thoroughness





Milling operation on #3 Brown Sharpe milling machine.

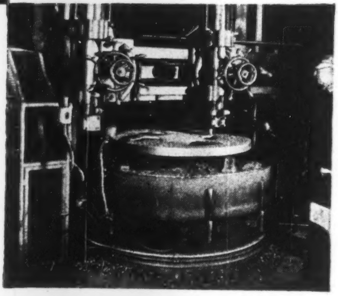
Milling slot in Hoist control lever for American locomotive crane now being rebuilt for Bobcock-Wilcox Tube Co., Barberton, Ohio.

Turret Lathe operation on #5A Gisholt turret lathe.

Turning—boring—facing and cutting to length, Bronze bushings for Lorain 820 turntable rollers. With parts in short supply as they are today, the ability to help ourselves is money in our customers' pockets.

Boring mill operation on 60 in. Niles vertical boring mill.

Turning and facing cylinder end casting for Robot laundry washer.



Rebuilding—to make like new—

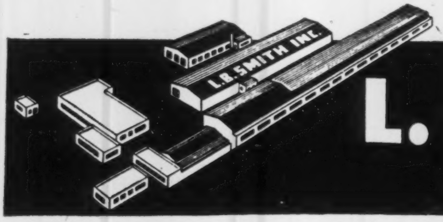
CONSTRUCTION EQUIPMENT

AN INVITATION

To Use the World's Largest Equipment Rebuilding Facilities

Where rebuilding is a business—with over 25 years of experience on all types of construction equipment—where highly trained mechanics with precision tools—can build back into your equipment many years of additional and efficient usefulness—using the same thoroughness employed in rebuilding our own used equipment.

You are invited to investigate our complete facilities.


L.B. SMITH INC.
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CAMP HILL, SUBURB OF HARRISBURG, PA.

L. B. SMITH INC.

New and Used Equipment News

Prepared Monthly by Ed Woolford at Camp Hill, Pa.

VOL. 1 **NO. 7**

AIR COMPRESSORS

Gardner-Denver 500 cu. ft. diesel, new condition.

Gardner-Denver 500 cu. ft. diesel, good operating condition.

Schramm 105 cubic foot gas powered compressor on 4 steel wheels.

Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condition.

Paving breakers, jackhammers, wagon drills, tie tampers.

QUARRY EQUIPMENT & BINS

2020 Cedarapids Double Impeller. New condition.

2036 Cedarapids AAA primary unit on rubber.

1036/2418 Cedarapids Jr. Tandem unit on rubber.

4024 Cedarapids roll, rebuilt.

3018 Cedarapids roll, rebuilt.

Cedarapids Rock-It plant with 2025 jaw, 3033 mill. New.

Cedarapids 1236 Model 6C plant, new.

10x7 Allis-Chalmers Blake type jaw crusher.

#1 Cedarapids Kubit impact breaker.

4' x 12' Cedarapids Ag lime double deck.

4' x 6' Kennedy Van Saun single deck.

3' x 6' Kennedy Van Saun triple deck.

36" Wemco single screw, new condition.

15 cu. yd. Cedarapids sand drag, new.

16" x 90' bucket elevator.

80-ton, 2-compartment, 8'x18' storage bin with clamshell gates.

Special bins to your specifications.

Conveyors—18"—24"—30"—36". Also belt.

TRUCKS—TRAILERS

1½-ton Ford with any body.

2000-gallon tanks on semi-trailer mounting.

New and rebuilt dump bodies.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current gasoline and diesel powered.

SHOVELS—CRANES

Osgood Model 900, 1¾ yd. diesel combination.

Lorain 55, 1-yd. shovel.

Lorain 40 truck crane on Mack 3-axle truck.

Unit 1020, ½-yd. gasoline crawler shovel. Good condition.

SHOVEL & CRANE ATTACHMENTS

Lorain L-41 Chain Crowd Shovel Attachment. Rebuilt.

Lorain 40 Hi-Lift shovel attachment.

P&H 203 shovel attachment.

Chain crowd Lorain 30A shovel attachment.

Bucyrus-Erie 1½-yd. rock bucket.

McCaffrey Model 648 for 1¼ to 2-yd. crane.

McCaffrey Model 636 for ¾-yd. to 1-yd. crane.

Backhoe Buckets & Attachments

Lorain 30 hoe attachment complete.

¾-yd. Lorain, 40, LBS #6105. 44" cutting width.

¾-yd. Amsco 40" cutting width, LBS #8101.

CLAM—DRAG—SCRAPER BUCKETS

LIFTING MAGNETS

2—45" Ohio lifting magnets, rebuilt.

1—36" ECM lifting magnet, rebuilt.

SHOVEL DIPPERS

Lorain 41, ¾-yd. LBS #8600, rebuilt.

New Lima 1-yd. Amsco, LBS #2295.

Bucyrus-Erie 1¼-yd. gas air, LBS #3782, fair.

Lorain 75B, 1½-yd. manganese bucket, LBS #8538.

Lorain 75B, 1¼-yd. extended lip, 1¾-yd. LBS #2260.

Pettibone-Mulliken 2-yd. Lorain 82 or 820, manganese, LBS #5361.

Pettibone-Mulliken 2-yd. for 3500 Manitowoc LBS #5763.

Esco 2½-yd. cast weld dipper with bail & teeth.

CONCRETE EQUIPMENT

Blaw-Knox gas-electric finisher, 10½'-12½', rebuilt.

Koehring 10'-12' finishers, rebuilt.

Cleveland formgrader, new 1944, rebuilt.

Corr formgrader, new 1944, rebuilt.

TRACTORS

TD-24 International with Bucyrus-Erie angleblade.

TD9 International diesel with 1 yd. Loadover.

Model CR Tournapull w/16-yd. Model E16 Tournarocker, rebuilt.

WELL DRILLS & TOOLS

Sanderson-Cyclone #42 well drill, new.

Sanderson-Cyclone #44 well drill, new.

Bits—Stems—Bailers—Sockets—Etc.

Barber-Greene 44C Trenching Machine 18" to 24" cutting width, 7' depth.

PUMPS

New Layne Bowler type 18 deep well pump with right angle gear drive. 3000 GPM at 120' TDH.

Used and rebuilt pumps, all sizes, gasoline, electric or diesel.

GRADERS

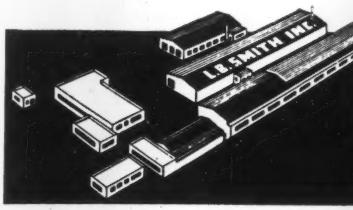
Austin Western 77 tandem drive, scarifier, 12' blade, gas power, hydraulic controls.

GASOLINE AND DIESEL ENGINES

Caterpillar D-13000, rebuilt.

Murphy ME-46, rebuilt.

Phone **HARRISBURG, PA. 7-3431**


L.B. SMITH INC.
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CAMP HILL, SUBURB OF HARRISBURG, PA.

DIESEL POWER

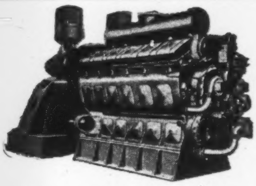
FOR

IMMEDIATE SHIPMENT

UNIT CAPACITIES—10 TO 1875 KVA

A.C.—50 AND 60 CYCLES

VARIOUS VOLTAGES



A PARTIAL LISTING OF OUR INVENTORY

KW	Make	Model	HP	RPM	KW	Make	Model	HP	RPM
1136	Fairbanks Morse	38D	1600	720	320	Enterprise	DSG-6	560	450
1100	General Motors	16-278A	1600	720	300	General Motors	8-268A	450	1200
1000	General Motors	16-567B	1440	720	200	General Motors	8-268A	350	900
750	General Motors	12-567	1080	720	100	General Motors	3-268A	150	1200
500	General Motors	8-278A	750	720	100	Worthington	BB-5	150	600
500	General Motors	8-567	720	720	60	General Motors	6-71	90	1200
350	Baldwin	VO-6	510	450	30	Internat'l Harvester	UD-14	45	1200
320	Buckeye	80	480	600					

D.C. UNITS ALSO AVAILABLE

A. G. SCHOONMAKER COMPANY, INC.

DIESEL DIVISION, 50 CHURCH ST., NEW YORK 7, N. Y.

Pile Driving Equipment

Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Pile Driving Accessories
Drop Pile Hammers and Caps
Steel Sheet Piling

CONTRACTORS MACHINERY Co.

2637 Southwest Blvd.
Phone Valentine 4740
Kansas City 8, Mo.

HEAT

PORTABLE HEATER SALE!

108 FEET OF DUCTS INCLUDED!

250,000 B.T.U. PORTABLE HEATER & DRYER

Herman Nelson portable, powerful 250,000 B.T.U. gasoline or oil burning heaters with turbine-type blowers. 1¼ h.p- air-cooled, ball bearing engine. 108 ft. of flexible, flameproof, waterproof ducts.

SALE PRICE

$199

HEATING buildings under construction, shops, sheds, warehouses, barns, tunnels, hangars, spot-heating, etc.

DRYING concrete, plaster, mortar, paint, etc. Torrid blasts of heat.

PRE-HEATING engines, tractors, trucks, freight cars, equipment.

THAWING machinery, freight cars, tanks, pipelines, frozen areas, etc.

IMMEDIATE DELIVERY • SATISFACTION GUARANTEED OR PURCHASE PRICE REFUNDED!

WIRE OR PHONE COLLECT • Your Heater can be shipped within 1 hour

Send for literature

BERNSTEIN BROS.

Since 1890

References: Dun & Bradstreet, Pueblo Savings & Trust Co.
175-1110D So. Sante Se Phone 11704 Pueblo, Col.

SALE OR RENT

1—TL 20 Lorain Truck Crane
1—25-Ton Link Belt HC-90 Truck Crane 120′ Boom
1—20-Ton Bay City Truck Crane, 80′ Boom, 15′ Jib
1—20-Ton N. W. Truck Crane
1—¾ Yd. Bay City Diesel Crane
4—500 Cu. Ft. Chg.-Pne. Diesel Air Compressors
1—2 Yd. Koehring 803 Crane
1—30-Ton Davenport Diesel Loco.
2—1¼ Yd. Bay City Crane or Shovel Diesel
1—¾ Yd. Lima 34 Shovel Diesel
1—45′ Boom & 10′ Jib for Link Belt 85 or 90, New
1—50-Ton Whitcomb Diesel Elec. Locomotive
1—70-Ton G.E. Diesel Elec. Locomotive
1—40-Ton Industrial Brownhoist Oil Fired Loco. Crane, New 1943

B. M. WEISS CO.

Girard Trust Co. Bldg. Phila. 2, Pa.
Rittenhouse 6-2311

SHOVELS—CRANES—DRAGLINES

Buc-Erie 170-B Electric Shovel. New 1949.
Buc-Erie 120-B Electric Shovel. 5 yds.
Page 625-S Diesel Dragline 150 ft. boom.
Page 618-S Diesel Dragline 110 ft. boom.
Northwest 80-D Diesel Shovel, rebuilt, 2½ yd.
Manitowac Mod 3500 Diesel Shovel.
Buc. Erie 54B Dragline, 100 ft. boom, 3 yd.
Buc. Erie 51B Shovel, 2 yd. Near new cond.
Koehring 304 Shovel ¾ yd. Rebuilt. Diesel.
P&H 855-B 1½ yd Shovel-Crane-Drag. Diesel.
P&H 255-A 20 ton Truck crane 80 ft. boom.
Lorain Mod. Mc-414 Moto-Crane 70 ft. Boom.
Lorain Mod TL-20 Moto-Crane, 60 ft. Boom.

TRAXCAVATORS—PAYLOADERS

Cat. D7 Traxcavator. Rebuilt
Cat. D7 Traxcavator. Rebuilt.
Cat. D4 Traxcavator. Rebuilt.
Hough Payloaders Models HLA, HFH, HE, HA.

CONCRETE PLANTS—BINS & SILOS

B-K P-4120, 3 compt., agg., one for cement.
Large plant 212 yds., 6 compt., agg. and cement elevators, 56-S Mixer. Excellent.
Large plant 400 yds., 5 compt. with 2 yd. Koehring Mixers. Write for details.
Cement bin 400 bbls. with batcher. NEW.
Agg. bin 100 tons 3 cpts. 2 yd. weighbatcher. New.

ASPHALT PLANTS

Barber Greene Model 842 Utility Plant
McCarter Iron Works Complete 3000# pug mill.
Cummer 1500 lbs. Semi-Port. Very good.
Std. 1500 lbs. Batch. Sta. Bit.
Simplicity Model S-100. Diesel powered.
B-G Model 840-830 Maintenance Plant. Complete.

STIFF LEG AND GUY DERRICK

Steel 35′ stiff leg derrick 100′ boom.
American 20 ton stiff leg derrick 90′ boom.
Stiff leg derrick 15 ton 100 ft. boom.
American 20 ton Guy derrick 100 ft. boom.

CONCRETE MIXERS AND PAVERS

Smith Tilting Mixer, 4 yds.
Smith 56S Tilting Mixer, 2 yds.
Jaeger BP-5 Asphalt Paver & attachments.
2 Ransome 34-E Dual Drum Pavers Diesel.
Rex 28-S Builders Mixer, Elec. New 1947.

ROAD AND AIRPORT FORMS

Blaw-Knox and Heltzel 8100 ft. 9″x9″; 10,000 ft. 8″x8″. 6000 ft. 12″x9″ airport forms.

RICHARD P. WALSH CO.

30 Church St. New York 7, N. Y.
Cable RICHWALSH Cortlandt 7-0723-4

FOR SALE

LIMA #604, 3 year old Diesel Crane, Clamshell, Dragline Combination. 90 ft. boom, 30 ft. Jib; 6 part boom Bridle; Back Hitch Gantry: Worm-driven Boom Hoist; Fairlead; Rud-O-Matic Tagline Attachment; Excellent condition.

CAYUGA FOUNDATION CORP.

30 Vesey St. New York 7, N. Y.
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DRAGLINE: Northwest model 6, with 70′ boom, 2 yd. bucket.

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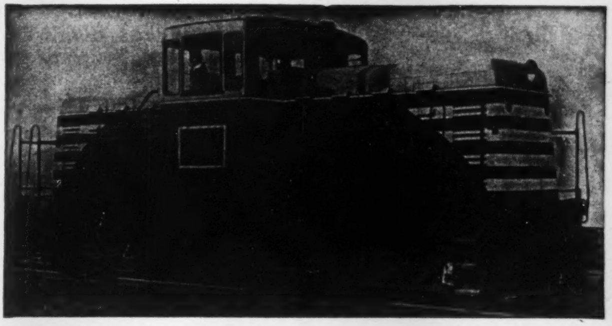

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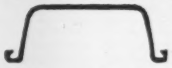

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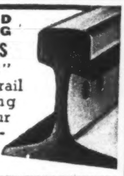

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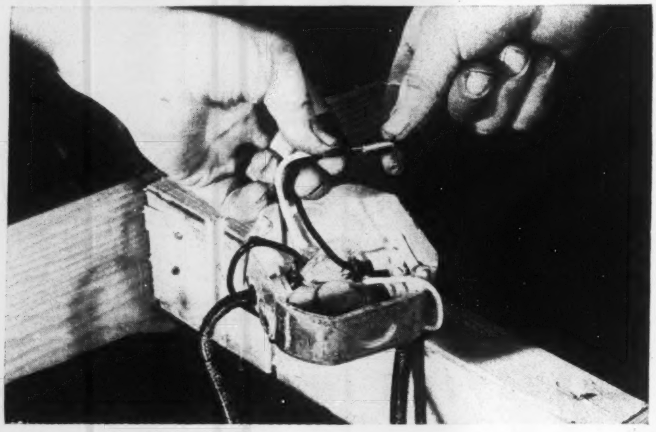

Spring-type connector won't loosen

For circuit wiring, appliance hookups and fixture work the small but powerful spring-type connector shown here provides a tight, permanent splice for single- or multi-strand wires up to gage 10. Made of zinc-plated steel wire, the conical-shaped connector is lubricated slightly, and is screwed on the stripped ends of wires with the fingers. A notched turning stem provides adequate leverage during application, and is then snapped off, leaving a neat splice with no sharp ends.

The coil spring design allows the connector to expand while being applied, but provides a shake-resistant, tension grip once the splice has been made. The fact that the connector adds but a fraction of an inch to the overall diameter makes it ideal for joining wires in crowded junction boxes. Recommended insulation is plastic "Scotch" electrical tape No. 33, which provides a water- and oil-resistant splice. The connectors cost but a few pennies each and save considerable time and punctured thumbs and fingers. Minnesota Mining and Manufacturing Co., 900 Fauquier St., St. Paul 6, Minnesota.

Generating plant developed for lifting magnet use

Two new electric generating plants, built specifically for commercial and industrial lifting magnet use, were recently put on the market. These 3,000 and 5,000 watt dc plants are designed for both stationary and portable service in either manual or remote electric starting models.

Prime power for the plants is provided by Onan CK two-cylinder, air-cooled, 4-cycle engine. Extra large bearings have been built into the engine along with pressure lubrication, and high tension magneto ignition.

Approximate weights: For manual stationary models—325 lb; remote stationary models—345 lb; manual portable models—305 lb.

Ask for Magnet Service Form A-290. For complete specifications write: D. W. Onan & Sons, Inc., Minneapolis 14, Minn.

Pocket-size meter measures to 300 amps or 600 volts

Some of the uses for the new Amprobe "300" pocket-size volt-ammeter are: determining load conditions; motor overloads; balancing loads; locating grounds; tracing shorts, start and run currents or relay settings; checking open windings in motors, voltage losses and controllers.

Voltage test leads are equipped with retractable safety plugs which automatically insulate them upon removal from the meter. Jaws are completely insulated down into the sockets, protecting against shorts and shocks. Probe jaws are pointed for working in crowded switch and terminal boxes. No-rim window floods scale with unobstructed light from the sides. The instrument is pocket-size and belt-mounting. For further information write: Pyramid Instrument Corp., Lynbrook, New York.

Improved ignition system in Continental engines

In a new and radically different industrial engine ignition system, developed by Continental engineers and designated as the Contex, breaker points and condenser, instead of being housed within the flywheel as in conventional air-cooled engines, are mounted as an external unit on top of the crankcase, the cam which actuates the points being driven off the camshaft.

When these parts require inspection, adjustment or repair, they are instantly accessible without tools under a quickly removable cap held in position by spring clips. Heretofore it has been necessary to remove the shroud and the flywheel in order to get at these units.

The breaker points operate at one-half engine speed, thus lengthening the useful life of ignition system components. Instead of wasting every other "break" and every other spark, as is usual in four-cycle air-cooled engines, it makes use of every spark.

On Continental air-cooled motors of the AU series, this system is available also in conjunction with fly-weight mechanical governor. The centrifugal unit is housed under the same cap as the condenser and points. Continental Motors Corp., Air-Cooled Engine Div., 12800 Kercheval Avenue, Detroit 14, Michigan.

Safety is built into ratchet-lever hoist

The new Coffing model R coil-chain ratchet-lever hoist has many new convenience and safety features while still retaining the unique ratchet and pawl operating principle originated by the company over 25 years ago, which eliminates the need for a friction brake. The load is suspended on the ratchet and pawl at all times.

Use of coil instead of roller chain in the model R permits it to swing or wrap easily in any direction and it may be pulled freely through the hoist head for quick adjustment when not under load. The handle is said to operate in any position and with partial or full strokes, and has safety stops to prevent its spinning.

The entire hoist can be quickly and completely disassembled with only a screwdriver and is available in 1,500- and 3,000-lb capacities. Every model R is factory-tested at 100 percent overload and the handle has been designed to bend under maximum overload conditions, thus giving the operator ample warning. Coffing Hoist Company, 800 Walter Street, Danville, Illinois.

(*"New Products" continued on p. 123*)

HEAT IN A *hurry*

WHERE YOU WANT IT
WHEN YOU NEED IT

switch
SILENT GLOW
PORTABLE HEAT

Applications

- Provides more comfortable working conditions in warehouses, machine shops, on loading platforms and docks... for outdoor repair crews, etc.
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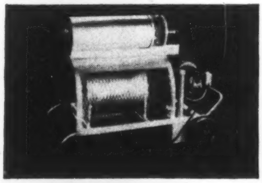
Continue that important job . . . under comfortably warm working conditions . . . in spite of winter cold. Silent Glow Portable Heaters provide all the heat you need — where needed.

Completely safe . . . all moving parts and heated surfaces protected . . . fully automatic controls . . . clean, safe heat and no flue required. *Easy to use* . . . instant start or stop at the flick of a switch. Lighted without matches or open torches. *Economical* . . . low original cost . . . low operating cost. Uses No. 2 fuel oil.

Model B, shown above, delivers 350,000 BTU per hour. Other units shown below. Get the facts now . . . mail coupon below.



Model RF delivers 168,000 BTU per hour. Provides two kinds of heat . . . radiant . . . forced air by means of auxiliary fan.

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PORTABLE HEATERS

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Model A — Forced air heater . . . portable . . . ideal for space heating of all kinds . . . heat output, 189,000 BTU per hour.

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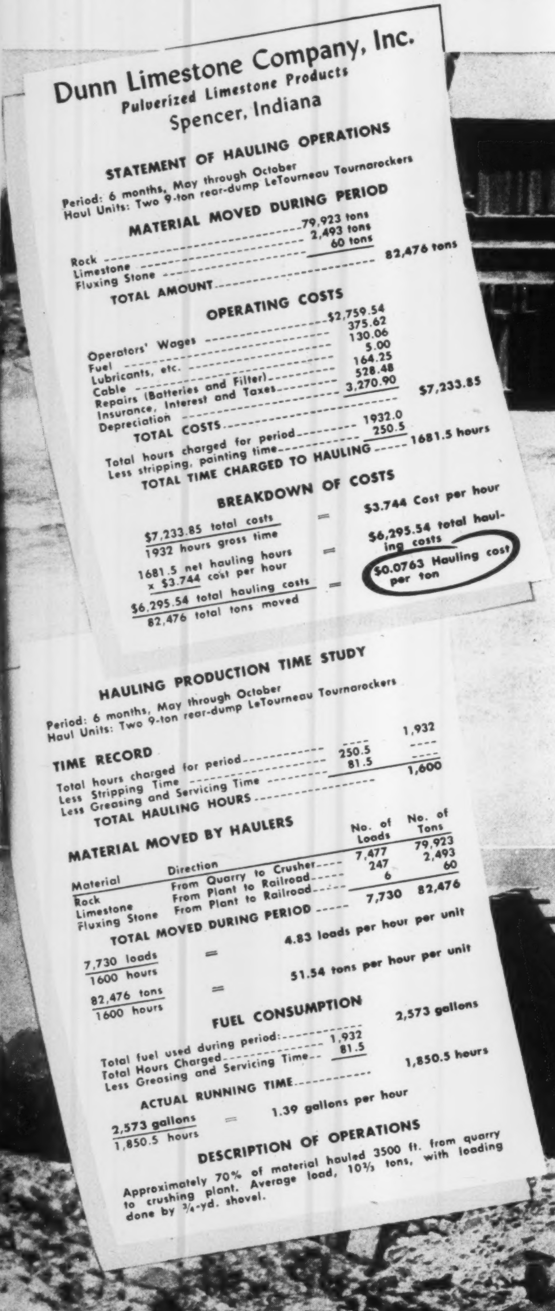
19H53

Hauls 82,476 tons of



Dunn Limestone Company, Inc.

Pulverized Limestone Products

Spencer, Indiana

STATEMENT OF HAULING OPERATIONS

Period: 6 months, May through October
Haul Units: Two 9-ton rear-dump LeTourneau Tournarockers

MATERIAL MOVED DURING PERIOD

Rock	79,923 tons	
Limestone	2,493 tons	
Fluxing Stone	60 tons	
TOTAL AMOUNT		82,476 tons

OPERATING COSTS

Operators' Wages	$2,759.54	
Fuel	375.62	
Lubricants, etc.	130.06	
Cable	5.00	
Repairs (Batteries and Filter)	164.25	
Insurance, Interest and Taxes	528.48	
Depreciation	3,270.90	
TOTAL COSTS		$7,233.85
Total hours charged for period	1932.0	
Less stripping, painting time	250.5	
TOTAL TIME CHARGED TO HAULING		1681.5 hours

BREAKDOWN OF COSTS

$7,233.85 total costs / 1932 hours gross time = $3.744 Cost per hour

1681.5 net hauling hours x $3.744 cost per hour = $6,295.54 total hauling costs

$6,295.54 total hauling costs / 82,476 total tons moved = $0.0763 Hauling cost per ton

HAULING PRODUCTION TIME STUDY

Period: 6 months, May through October
Haul Units: Two 9-ton rear-dump LeTourneau Tournarockers

TIME RECORD

Total hours charged for period	----	1,932
Less Stripping Time	250.5	----
Less Greasing and Servicing Time	81.5	----
TOTAL HAULING HOURS		1,600

MATERIAL MOVED BY HAULERS

Material	Direction	No. of Loads	No. of Tons
Rock	From Quarry to Crusher	7,477	79,923
Limestone	From Plant to Railroad	247	2,493
Fluxing Stone	From Plant to Railroad	6	60
TOTAL MOVED DURING PERIOD		7,730	82,476

7,730 loads / 1600 hours = 4.83 loads per hour per unit

82,476 tons / 1600 hours = 51.54 tons per hour per unit

FUEL CONSUMPTION

Total fuel used during period:		2,573 gallons
Total Hours Charged	1,932	
Less Greasing and Servicing Time	81.5	
ACTUAL RUNNING TIME		1,850.5 hours

2,573 gallons / 1,850.5 hours = 1.39 gallons per hour

DESCRIPTION OF OPERATIONS

Approximately 70% of material hauled 3500 ft. from quarry to crushing plant. Average load, 10⅔ tons, with loading done by ¾-yd. shovel.

▲ "Tournarockers have plenty of power to carry any load we place on them," says Operator Gerald R. Summuldt. "I like them very much." Big 4-wheel multi-disc air brakes add confidence for safe, fast hauls.

Load is dumped at crusher. Occasionally, rig also hauls finished product to railroad cars which are along line of haul from quarry to mill. Operator Summuldt says, "Tournarockers are easy to handle — especially in these close places — due to their short turning radius." ▼

rock at 7.6c per ton

Dunn Limestone Co. averages 103 tons hourly over 6-month period with two 9-ton Tournarockers

On 7000′ cycle, rig averages 15 m.p.h., often hits top of 28 m.p.h. "These rigs do our job perfectly," says Foreman Eldeth Lacy, "I wouldn't trade them for any other hauling units on the market today."

Cost and production records are "proof of the pudding" as far as Dunn Limestone Company, Inc. of Spencer, Indiana, is concerned. Formerly, all their rock was hauled from quarry to crushing plant by 1½-ton trucks. Early in 1951 the trucks were replaced with 2 electric-control, rear-dump 9-ton D Tournarockers, with the following "very satisfactory" results (as based on the company's own figures over a 6-month period):

Loaded by a ¾-yd. shovel at the quarry, each high-speed "Rocker" moved 10⅔ tons of blasted quarry-run rock to the crusher every 12 minutes. Rigs made 4.8 trips per hour over a 7000′ cycle . . . also handled some haul-back of limestone and crushed rock to rail cars. In 1,600 hauling hours, the 2 Tournarockers delivered a total of 82,476 tons (7,730 loads), for an average of 51½ tons per hour per unit.

Over 1,932 total operating hours, total costs (including operator wages, fuel, oil, repairs, insurance, interest, taxes and depreciation) averaged $3.74 per hour . . . or *7.63c per ton of rock hauled.* No wonder Company Vice-President John D. Beem says, "These actual operating figures over a six months' period convinced us that Tournarockers are handling our job on a very satisfactory basis!"

Whenever *you* have rock, dirt, or ore to haul, it will pay you to investigate the savings possible with Tournarockers. There's a size to fit your needs . . . 9, 18, 35 and 50 tons. See your LeTourneau Distributor for full details.

Tournarocker is loaded with 10 to 11 tons of pit-run rock in an average of 7½ minutes.

Tournarocker—Trademark Reg. U. S. Pat. Off. DR-146-Q

R. G. LeTOURNEAU, INC.
Peoria, Illinois

LETOURNEAU
LeT
EQUIPMENT

Cutting ditching hazards on the high seas and the highways

U·S·S AMERICAN MULTISAFTY CABLE GUARD

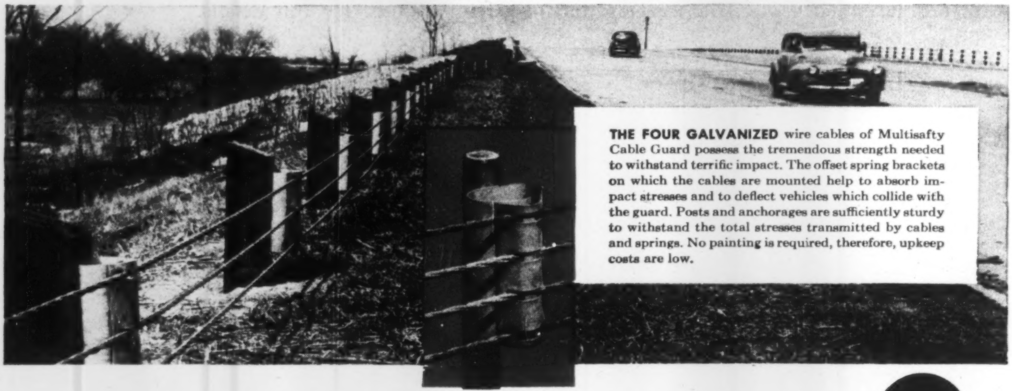
THE LANDING OFFICER can guide the pilot to the air-craft carrier's deck, but he cannot *stop* the plane. To do that, a hook, attached to or near the plane's tail must engage one of the galvanized wire cables mounted on spring brackets, which are stretched across the deck. The resiliency of the wire cable, plus the action of the spring bracket, absorbs the shock of the plane's forward speed, helps stop it promptly, safely. American Multisafty Cable has proved so long lasting, effective and economical that it is being widely used for this purpose by the United States Navy.

When a pilot lands his fighter on a flattop, a system of wire cables, attached to spring brackets, prevents him from "ditching" at the other end of the ship. And when a motorist goes off the road on a properly protected highway, a system of wire cables, attached to resilient brackets, can be designed to properly deflect the car even though the guard rail is hit at high speeds.

That is why Multisafty Cable Guard has been adopted as a standard material by many state highway commissions. The four galvanized wire cables, attached to galvanized spring brackets, absorb the impact of collision and sideswiping, prevent off-the-road crashes and capsizing of speeding cars.

Multisafty Cable Guard has been developed from many tests made at our Worcester, Massachusetts proving grounds where various guard rails were hit by automobiles at high speeds. Stresses in the rail were measured at time of impact. From these tests, data are now available to arrive at a rational method of designing highway guard for *definite miles per hour protection.*

When you are considering high-grade low-cost protection for highway traffic in your area, drop a line to our nearest sales office for complete information on Multisafty Cable Guard and for literature containing information on how to design a guard rail for *definite miles per hour protection.*



THE FOUR GALVANIZED wire cables of Multisafty Cable Guard possess the tremendous strength needed to withstand terrific impact. The offset spring brackets on which the cables are mounted help to absorb impact stresses and to deflect vehicles which collide with the guard. Posts and anchorages are sufficiently sturdy to withstand the total stresses transmitted by cables and springs. No painting is required, therefore, upkeep costs are low.

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL COMPANY, GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS

TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS • UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

UNITED STATES STEEL

Lighting standards made of prestressed concrete

Architects, engineers and contractors who have become increasingly familiar with advantages gained by prestressing concrete for many and varied construction applications will be interested in new lighting standards of prestressed concrete announced by the American Concrete Corporation.

The company hastens to explain that although it has centrifugally cast concrete poles for years with steel rods in tension, this does not fully constitute prestressing by today's engineering standards. Instead, the new prestressed poles are reinforced with spring steel wire of much smaller diameter, but subjected to tensions actually exceeding 150,000 psi. When this tension is released during the concrete curing process, the compressive force results in a much denser concrete.

Basic gains claimed by the company for their new prestressed poles are: (1) increased ruggedness with greater strength to resist deflection and other stresses in handling, shipment, installation and service; (2) similarly, avoidance of microscopic cracking that might ultimately affect pole life or appearance; and (3) due to the reduction in volume of steel reinforcement, less opportunity for internal corrosion. American Concrete Corp., 5092 N. Kimberly Ave., Chicago 30, Ill.

Kit converts masonry saws from dry to wet cutting

Contractors and industrial maintenance departments can now modernize their dry-cutting masonry saws by installing a handy Target conversion kit.

Wet cutting offers many advantages over dry: the re-circulating and spraying of water on the cutting blade completely eliminates dust—longer blade life is experienced—and chipping along the edge of cut is eliminated.

With this new adapter, the company claims that diamond blades which require water may be used to cut glass, marble, porcelain, glazed tile, acid brick and other similarly dense, hard materials.

Installable in 5 min, the kit consists of a steel reservoir for water, electric pump for circulating same, machine tubing and spray nozzles with inset holders and a canvas back drop. Models are available to fit most saw frames. Robert G. Evans Company, 6315 Brookside Plaza, Kansas City, Missouri.

Portable, adjustable tool cuts and bevels steel pipe

Under present maintenance methods in much of the gas, petroleum and sewage construction work, a length of pipe is destroyed whenever a new fitting is installed. According to the manufacturer of this new cutter, pipe can be cut effectively right where it's lying in the ditch. In addition, only about one-third as much digging is required to perform the job.

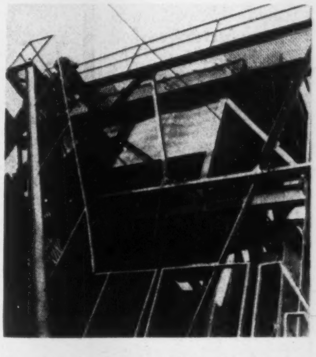
Two cutter sizes are available: One for 6-, 8- or 10-in. pipe, the other for 12-, 14- and 16-in. pipe. (Larger sizes can be custom made.) Power from several sources facilitates field use. A ¾-in. slow speed electric drill, its equivalent in an air drill, or a gasoline-engine-powered flexible shaft, geared down, are acceptable. The unit will cut and bevel 10-in. steel gas pipe, for instance, in 10 minutes. Cuts are true, with a flat edge on the inner circumference for immediate welding. Bevel cuts are made usually at 60 deg included angle, but where codes in various areas demand different angles, suitable bits can be furnished.

It will cut and bevel steel pipe in one operation, cut cast iron pipe without splits or breaks, and is hinged for use on pipe already installed. It's recommended by the Cast Iron Soil Pipe Institute, Pacific Coast Clay Products Institute, Duriron Co., and manufacturers of Corrosiron for cutting cast iron, Duriron, vitreous clay, water pipe and cement sewer tile up to 12 in. Springload Manufacturing Co., 2412 Aurora, Seattle 9, Washington.

Variable speed motor has flexible shaft control

A new lightweight Varidrive motor, in fractional horsepower, is now available with mechanical remote control. This control feature includes a hand wheel with indicator dial and a 5-ft flexible cable so that the machine operator can control the Varidrive's speed at a distance from the motor. An advantage of this control arrangement is that the dial indicator is a part of the control, making it unnecessary to go to the motor to see what speed is being "revved up."

A connecting cable longer than 5 ft can be used if necessary. Type 5 VA Varidrive has been made available in ¼, ⅓, ½ and ¾ hp and in a speed ratio up to 10:1 over a range of 4:10,000 rpm. The entire unit is a one-package motor with variable speed mechanism enclosed. U. S. Electrical Motors Inc., Box 2058, Los Angeles 54, California.



Expanded metal walkways are safe and clean

There are literally hundreds of occasions on construction jobs when sure footing is absolutely necessary. Danger of slipping near machinery or plant installations has been lessened considerably by use of Safe-T-Mesh walkways and stair treads. Made by slitting and stretching heavy gage steel into non-skid, diamond-patterned surfaces, the Safe-T-Mesh is welded to sturdy angle iron frames.

In the photo above, these walkways and treads are apparent on a Cedarapids bituminous mixing plant that's producing 110 tons of hot bituminous concrete per hour for resurfacing of the Lincoln Highway.

Advantages of the walkways include high strength-weight ratio, weather resistance, through-visibility etc. The skidproof surface prevents slipping or falling, according to the manufacturer, and the open work pattern allows passage of dirt, dust and water that otherwise would accumulate and make walking surfaces slippery and dangerous. Wheeling Corrugating Co., Wheeling, West Virginia.

(*"New Products" continued on p. 125*)

Manufacturers of Toncan Iron Drainage Products

●

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BOISE, IDAHO

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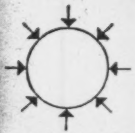
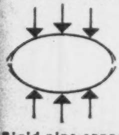
DRAINAGE STRUCTURES



Because corrugated metal pipe is flexible, heavy loads are equalized around the pipe.



Rigid pipe cannot deflect, hence may collapse under concentrated load.

It's not unusual for Toncan Iron Drainage Structures to outlast the road—

1.—because Toncan Iron is the most rust-resistant ferrous metal in its price class. It's an ALLOYED IRON . . . containing twice the copper ordinarily used in copper-bearing steels and irons—*plus* the proper amount of molybdenum to make the copper do its work.

2.—because Toncan Iron Drainage Structures flex with the fill—thus will not crack or crumble under heavy loads, vibration, impact, weather changes or settling fill.

3.—because Toncan Iron Drainage Structures are easy to handle, haul and install with unskilled labor.

See your nearest Toncan Iron Manufacturer or write us.

REPUBLIC STEEL CORPORATION • GENERAL OFFICES: CLEVELAND 1, OHIO

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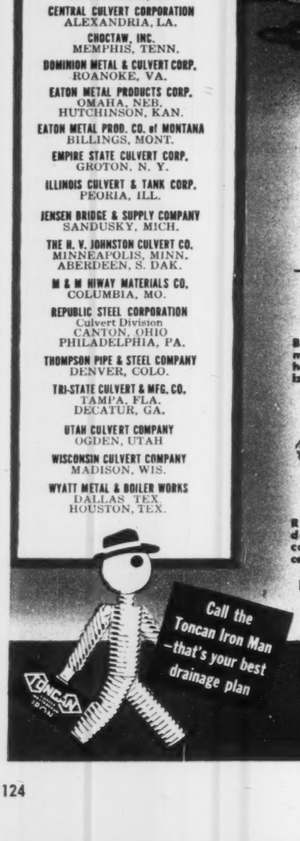
Corrugated Metal Pipe • Perforated Corrugated Metal Pipe • Sectional Plate Pipe
Sectional Plate Arches • Corrugated Metal Arch-Pipe • Sectional Plate Arch-Pipe
Corwel Subdrainage Pipe • Bituminous Coated and Paved Pipe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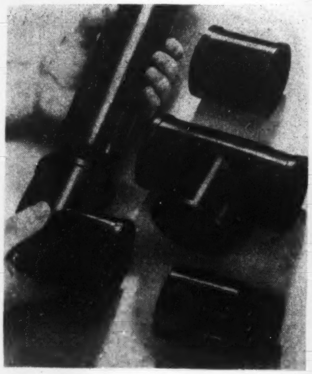
IRON



Injection-molded fittings speed plastic pipe jobs

Yardley plastic pipes and fittings, produced from tough Tenite, have speeded laying of pipelines in oil-fields and industrial systems, according to the manufacturer. The fittings are injection molded in a variety of sizes and shapes, either slip-sleeve or threaded, to fit extruded pipe with diameters up to 6 in. Slip-sleeve couplings can be quickly and permanently bonded into lines by means of a cement and thinner which have an affinity for the tenite, which is a cellulose acetate butyrate produced by Tennessee Eastman Co.

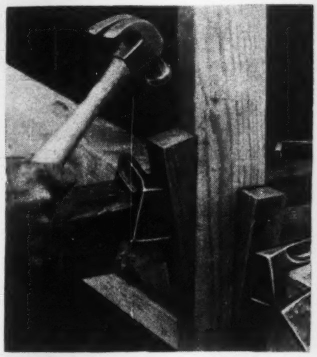
Lightweight and high in impact strength, these pipes and fittings are said to simplify handling and installation problems. In service they prove extremely resistant to corrosion, wear and varying weather conditions. Yardley Plastics Co., 142 Parsons Avenue, Columbus, Ohio.

LeRoi broadens size range of compressors

Five new sizes of portable air compressors have been added to the Le Roi Company line. The new capacities are rated at 85, 125, 185, 250, and 365 cfm.

“Le Roi's wide range of sizes offers the air compressor user exactly the capacity he needs to operate a given number of tools at adequate pressure, yet not pay the penalty of excessive depreciation and other charges due to working with a compressor too big and too expensive for the job,” according to N. M. Sedgwick, construction and mining division sales manager for the company.

The new sizes have been added to the regular line which includes capacities of 60, 105, 210 and 600 cfm models. Of these nine, all but the smallest three can be supplied with Le Roi gasoline engines or International Harvester diesels. As an additional service to users of the big 600 cfm model, a choice of IHC, Murphy, or Caterpillar engines may be made. Le Roi Company, 1706 South 68th Street, Milwaukee 14, Wisconsin.



Concrete form clamps need no nails or bolts

By driving home a wedge with a hammer a form carpenter is able to grip one timber at any point while wedging another into a non-slip position. These one-piece malleable castings have no assembly parts, need no nails to pin and later pull, and are particularly easy to strip, according to the manufacturer. They've been designed to hold on inside corners, outside corners, columns, panels, beam sides, etc. For further information write to Neptune Manufacturing Co., 3250 E. Olympic Boulevard, Los Angeles 23, California.

PUBLICATIONS

Welding electrode comparator—This is a compact cardboard device measuring 3x9 in. which tells at a glance the direct comparison between the electrodes manufactured by any one of twenty different manufacturers and those manufactured by the General Electric Company. Any welder, for instance, can set the code for a given manufacturer in the window marked “Code.” He can then read a comparison of types between that manufacturer's electrodes and GE electrodes in other windows of the comparator. General Electric Company, Schenectady 5, N. Y.

Aluminum forming—Anyone who works with metal will find a wealth of information on how to draw and form aluminum sheet, plate, tubing and pipe in this new 148-page technical manual.

It points out that the most common mistake is the attempt to work and form aluminum by the identical technique used for other metals. While similar techniques may be employed in some operations, others require special procedures and this highly compact, highly illustrated book explains them completely.

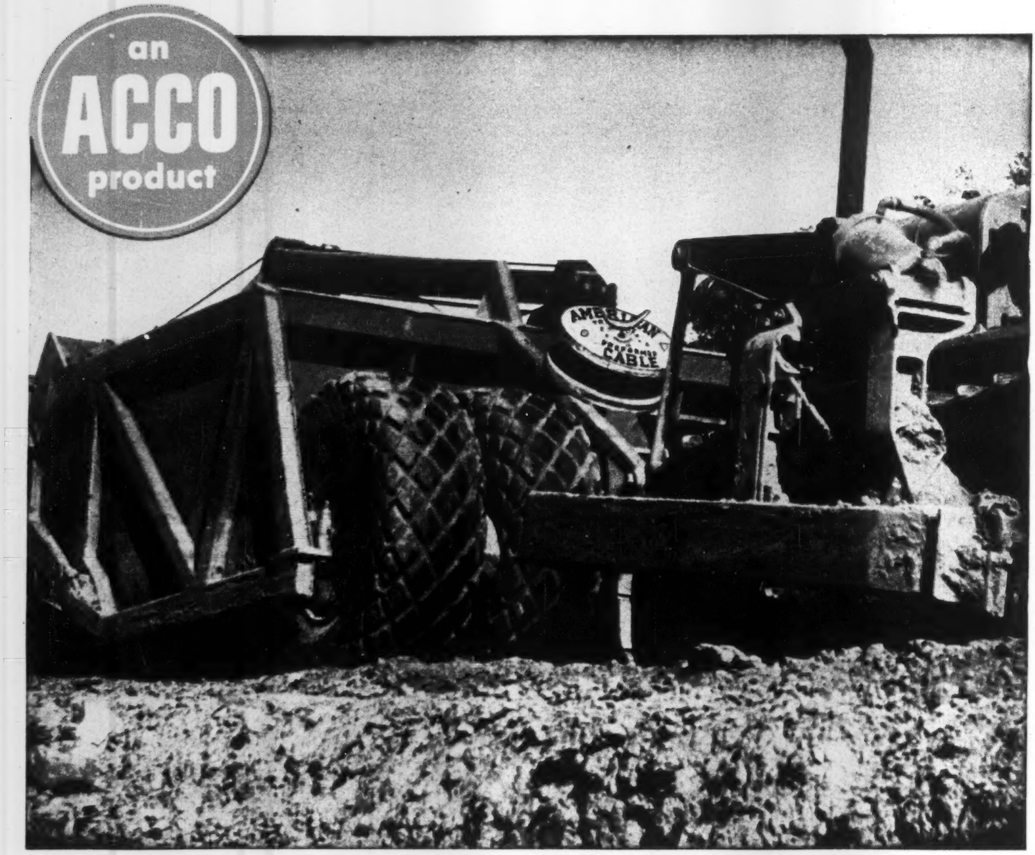
Monotube dryer—This 8-page booklet distributed by Link-Belt Company explains economical drying and cooling, as well as a new means of obtaining by-products and recovering solvents. It describes how the Monotube dryer operates on the conduction principle of heat transfer. There are no air currents through the material bed. Dusting is practically eliminated, and it is possible to dry materials having fine particles which readily become air borne.

Two types are manufactured by the company and these are explained in detail. Specify book No. 2413 when writing the Link-Belt Company, 307 North Michigan Avenue, Chicago 1, Illinois.

“Steel Exteriors for Multi-Storied Buildings” is the title of a 32-page booklet that represents data gathered from many sources to help clarify thinking on thin, light-weight curtain walls.

Included in the booklet are chapters on the effects of fire on load-bearing walls, insulation and water absorption, cleaning and rejuvenation of older buildings, maintenance, and applications for stainless steel or porcelain enamel panels. United States Steel Corporation Subsidiaries, Room 4321, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

Insulated aluminum window frames—Thermo-Sash is the name given to the aluminum insulated sash made and displayed recently in New York City before the American Institute of Architects. The eight-page booklet shows how new sash matches in insulating qualities the performance of glass and conventional brick or frame wall so as to add to savings in heat in winter and lower the cost of insulation in summer. It is available for the new type of panel windows with or without vents. Kesko Products, Bristol, Indiana



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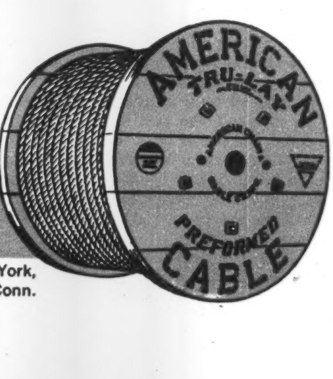

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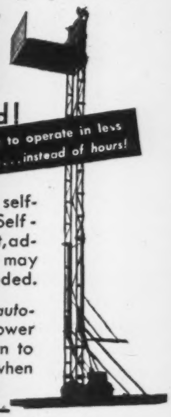

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EDITORIALS

Fly-Ash in pavements

BALTIMORE'S experiment with substituting fly-ash for part of the portland cement in a concrete pavement (p. 40) marks another step in studies to find a use for that waste product of steam power stations. Those studies began with the use of fly-ash as a replacement for part of the cement in mass concrete for dams (ENR June 22, 1950, p. 39). In mass concrete, fly-ash has the advantage of reducing the heat of hydration. Also, because of its pozzolanic characteristics, the fly-ash combines slowly with free lime released by the portland cement, thus producing a stronger mass with increasing age. Fly-ash also has been found to increase workability and reduce permeability.

These characteristics all appear to be on the asset side in dam construction. In pavement work, however, as W. L. Chilcote points out in his article in this issue, use of fly-ash cuts down the amount of entrained air and so, presumably, reduces the resistance of a concrete pavement to chlorides used to free pavements of snow and ice. However, it could be possible that the fly-ash gives to such concrete other characteristics that may offset the reduction in entrained air. Mr. Chilcote hopes that the test pavement in Baltimore will give a partial answer to this question.

Still unexplored, in so far as we know, are the possibilities of fly-ash in stabilizing bases for highways, presumably in combination with portland cement or with lime. As Mr. Chilcote observes, when fly-ash is mixed with lime, it combines slowly with the lime to form a material not unlike natural cement. That is what happens when it combines with the lime released by cement.

Portland cement now is used widely to stabilize soils for secondary roads, and techniques for mixing it with soil have been perfected. If the cost of such work can be reduced and the quality of the stabilized soil improved by substituting fly-ash for part of the portland cement, the possibilities of that type of treatment will be greatly enlarged. For example, such stabilized soils could be used much more extensively than they have been in the past for the subgrades of pavements of portland-cement concrete or of bituminous concrete on main highways, thus making possible a reduction in the total thickness of the pavements.

If a mix of fly-ash and lime begins to develop cementing qualities fairly quickly, it should be possible to use such mixes for soil stabilization in highway construction following the methods developed for cement stabilization. Lime alone has been used for that purpose, hence the addition of fly-ash to improve the stability of the mass would appear to be a logical step.

As fly-ash is produced in largest quantities in areas where the population density is greatest, finding uses for it in street and highway construction should help both the state highway departments and the power companies.

Building Research Advanced

IT IS GRATIFYING to note that the building industry is awakening to its responsibilities for improving the quality of its output. Latest sign is the establishment by the National Association of Home Builders of a research division (p. 19 of this issue). Previously, at the request of the industry, the National Research Council established the Building Research Advisory Board to correlate and stimulate research in the building field.

In view of the earlier establishment by Congress of a research division in the Housing and Home Finance Agency, these steps make it evident that the building industry intends that the government shall not control building research.

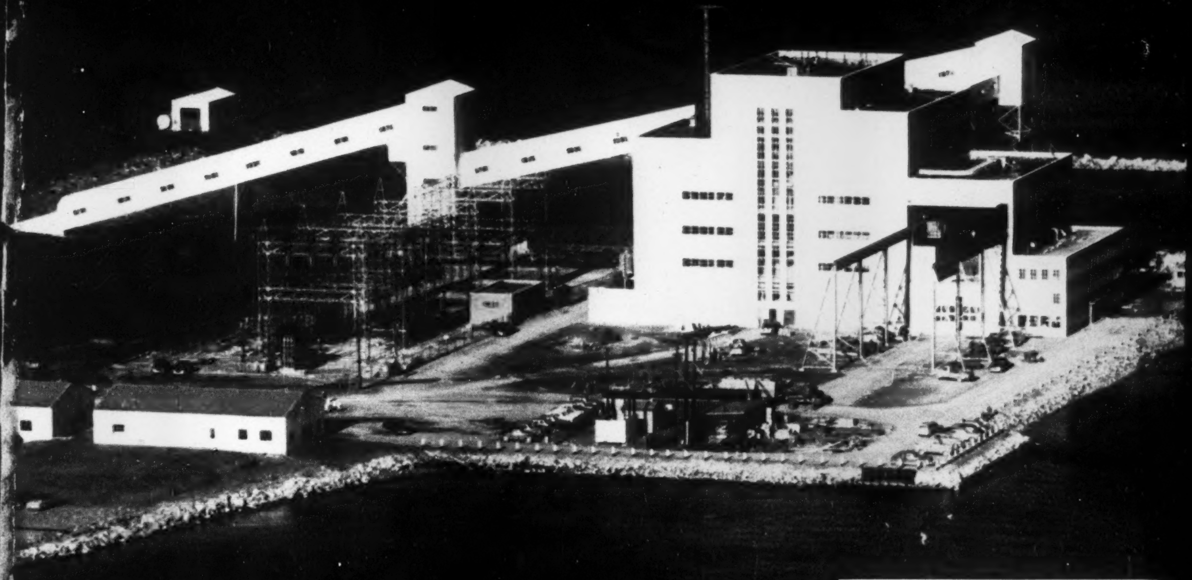
The research division just set up by the Home Builders will have the same members as the parent organization. In the near future it is expected to be set up as an independent organization and thus able to plan a long-range research program on the basis of a minimum assured income. For example, this might be in the form of additional dues from NAHB members or a fee of one dollar per house built by members each year. (At today's rate of starts, this fee would provide a half-million dollars annually.)

Under such a plan this new research agency would be freed of a handicap that has severely limited the activities of the Building Research Advisory Board since it was set up a few years ago. It has lacked an assured income with which to stimulate or finance research because it must depend for funds on annual grants from the National Research Council, from trade associations, professional societies or companies in the building field.

Last year the council set up the Building Research Institute, which it hoped could provide an income for BRAB from membership dues. This having proved unsuccessful, BRAB tried to obtain grants from philanthropic foundations, but officers of such foundations were not receptive to the proposal when they learned that the building industry itself was doing little to promote research.

The Building Research Advisory Board can do much for the building industry as a whole by coordinating the research activities of existing research agencies with those of the new research division of the National Association of Home Builders.

If the industry believes in private enterprise, if it believes that research can pay off in higher profits to industry and a higher standard of living for everyone, then it should contribute generously to the support of these new research organizations.



Central Hudson Gas and Electric Corp. Power Plant, Newburgh, N. Y. Engr.—Burns and Roe, Inc., New York, N. Y.; Contrs.—Drill-In Caisson Corp., New York, N. Y. and G. E. Campbell, Poughkeepsie, N. Y. Pozzolith Ready-Mixed Concrete supplied by Hudson Valley Concrete Co., Newburgh, N. Y. (Master Builders Masterplate and Embeco also used in building this plant.)

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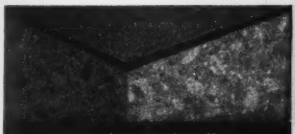

Section of Masterplate Floor. Note Thickness of Armored Surface.

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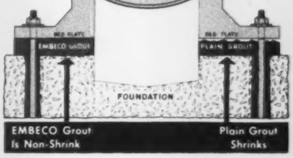

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Heavy-duty Texaco Asphaltic Concrete paving in Virginia's new Norfolk-Portsmouth tunnel serves . . .

1,000,000 vehicles in 80 days

READY FOR BUSINESS—Newly completed Norfolk-Portsmouth Tunnel, which is served by a hot-mix Texaco Asphaltic Concrete pavement, laid by Ames and Webb, Norfolk.

Photo Craftsmen, Inc., Norfolk

Virginia's new Norfolk-Portsmouth vehicular tunnel under the Elizabeth River was opened officially on May 23rd this year. Preliminary estimates of the tunnel's traffic proved to be on the conservative side. By August 10th—80 days after the opening—1,000,000 vehicles had passed through the new facility.

The pavement which serves the exceptionally heavy traffic of the Norfolk-Portsmouth Tunnel is hot-mix Texaco Asphaltic Concrete. It was constructed in two courses, having a combined thickness of five inches in the center, tapering off to two inches at the sides. The 22-foot wide pavement is divided into two lanes by colored tile blocks, six inches square, which are embedded in the asphalt mix.

Hot-mix Texaco Asphaltic Concrete paving is a sound investment wherever heavy traffic must be served. Its ability to absorb severe impact, its freedom from joints, low susceptibility to temperature changes and immunity to ice control salts, all contribute toward a long life with a minimum of maintenance and a low annual cost.

Hot-mix Asphaltic Concrete is one of a number of plant-mixed types of asphalt paving for streets, highways, airports and tunnels. These types vary in the grade of asphalt and kind of aggregate employed in the mix. One of these types may supply the best answer to your paving problem, under your particular conditions, including available aggregate, volume and weight of traffic to be served and money limitations. Helpful information concerning these pavements is supplied in a booklet entitled "Texaco Asphalt Paving—Plant-mixed types", copy of which will be sent you without cost or obligation by our nearest office.

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